

DISABLED PERSONS' LABOR FORCE RESPONSE:
MEDICAL AND NONMEDICAL FACTORS

BY

MARY ANN BURG

A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

1986

This dissertation is dedicated
to Nick

ACKNOWLEDGEMENTS

I would like to express my thanks to all my committeemembers, Dr. Felix Berardo, Dr. Lee Crandall, Dr. Cynthia Rexroat, Dr. John Henretta and Dr. Otto von Mering, for their guidance throughout my years at the University of Florida and for their assistance on this dissertation.

Special thanks must also go to Dr. Connie Shehan and Dr. Cynthia Rexroat for our collaborations in research and for their wonderful support in all things.

TABLE OF CONTENTS

	<u>Page</u>
ACKNOWLEDGEMENTS.....	ii
LIST OF TABLES.....	v
ABSTRACT.....	vi
CHAPTER I: INTRODUCTION.....	1
The Research Problem.....	1
A Conceptual Framework.....	7
CHAPTER II: REVIEW OF THE LITERATURE.....	16
Defining Disability and Data Implications.....	16
Characteristics of the Disabled Working-Age Population.....	18
Self-Perceived Health.....	23
A Theoretical Basis for Examining Health Perceptions.....	23
Measures of Health Perception.....	26
Medical Constraints.....	29
Inclination Factors.....	32
Labor Force Participation of Disabled Persons.....	36
Medical Constraints.....	38
Inclination Factors.....	39
Gender Differences in Labor Force Participation.....	42
CHAPTER III: DATA AND METHODOLOGY.....	46
Research Strategy.....	46
Data.....	47
Sample.....	49
Measurement of Variables.....	50
Dependent Variables.....	50
Medical Constraint Variables.....	50

Specific Research Hypotheses.....	53
The Prediction of Self-Rated Health.....	53
The Prediction of Labor Force Status.....	55
Expected Differences in the Labor Force	
Status of Disabled Men and Disabled Women.....	58
Statistical Procedures.....	60
CHAPTER IV: FINDINGS.....	62
Introduction.....	62
Descriptive Statistics.....	63
Analysis of Self-Rated Health.....	68
Analysis of Labor Force Status.....	75
Analysis of Gender Differences in Labor	
Force Status.....	86
CHAPTER V: SUMMARY AND CONCLUSIONS.....	94
Introduction.....	94
Conceptual Framework.....	96
Limitations of the Study.....	96
Summary of Findings.....	98
Self-Rated Health.....	98
Labor Force Status.....	101
Conclusions.....	106
APPENDIX 1.....	110
REFERENCES.....	111
BIOGRAPHICAL SKETCH.....	123

LIST OF TABLES

<u>Table</u>		<u>Page</u>
4.1	Percentage Distributions, Means and Standard Deviations for Variables in the Analysis.....	65
4.2	Logistic Regression Results for the Prediction of Self-Rated Health of Disabled Persons.....	70
4.3	Logistic Regression Results for Labor Force Status in the Full Sample of Disabled Persons.....	77
4.4	Percentage of Disabled Persons in the Labor Force by Functional Limitations and Age, and by Functional Limitations and Education.....	79
4.5	Percentage of Disabled Persons in the Labor Force by Beneficiary Status and Age.....	81
4.6	Logistic Regression Results for Labor Force Status of Disabled Women.....	88
4.7	Logistic Regression Results for Labor Force Status of Disabled Men.....	89

Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

DISABLED PERSONS' LABOR FORCE RESPONSE:
MEDICAL AND NONMEDICAL FACTORS

By

Mary Ann Burg

December 1986

Chairperson: Dr. Felix Berardo
CoChairperson: Dr. Lee Crandall
Major Department: Sociology

This dissertation is a study of factors involved in the probability of working when a person is disabled. Three types of factors are examined in the prediction of labor force status in 1978 for a sample drawn from the 1978 Survey of Disability and Work: medical constraints, health perception and nonmedical factors.

The first part of the research was an analysis of the sources of variation in health perceptions of disabled persons. An equation was estimated for the prediction of self-rated health, with medical and nonmedical variables as predictors. Self-rated health was influenced by the extent of functional limitations, the prognosis for the health condition, the receipt of benefits, education, gender and age.

The probability of working was then estimated. Nonmedical variables exerted as much influence on labor force status as did the medical constraints of a disability. Self-rated health was the

major influence. Separate equations estimating labor force status for disabled men and women showed that marital status is a major source of differentials in the labor force response of men and women.

CHAPTER I INTRODUCTION

The Research Problem

Physical disabilities are increasing in the population, and their impact has contributed to rates of unemployment (Parsons, 1980) and rising demands on the Social Security system among other areas of national concern. One of the ways researchers have responded to these issues is to examine why people with disabilities continue or discontinue working.

The substantive issue examined in this dissertation is the labor force participation of disabled persons. Early research in work response among disabled persons focused on how medical factors affect work response. Specifically, the nature and severity of physical handicaps (see eg., Haber, 1973; Schechter, 1981) and the duration and diagnostic grouping of disabling conditions (Levenson and Green, 1965; Schechter, 1977) were shown to differentially affect labor force participation. In general it is fairly clear that one of the major factors in the decision to work when disabled is physical ability to work.

The available data show, however, that variable rates of labor force participation occur within severity and diagnostic groupings of

of disablement (Berkowitz, 1979). Research in the labor force behavior of disabled persons has thus broadened to consider non-medical factors that cause variability in work response. Non-medical factors which have been examined include 1) the effect of financial need on choosing to work despite being disabled; 2) how disabled persons' background characteristics, job satisfaction, and attitudes of employers affect commitment to work; and 3) the ways in which supply-side factors limit the labor market decisions of disabled people.

The financial circumstances of the disabled person may demand or preclude gainful employment regardless of the nature or severity of the medical condition experienced by the disabled person. Specific circumstances that might demand employment despite the severity of the medical condition include financial need due to family support requirements (Schechter, 1981), or inability to qualify for sufficient benefit income due to inconsistent labor force participation previous to the onset of the disability (Mudrick, 1983). On the other hand, a possible precluding factor to employment is receipt of benefit entitlements for disability. In 1957 cash benefits for the disabled worker began under the Social Security system. Coverage included disabled workers over 50 originally and their dependent children and spouses. These benefits were allowed only for insured workers who met the labor market attachment test of 20 quarters of covered employment out of the last 10 years before applying for benefits. In 1960 the benefit was extended to all age groups of insured disabled workers. Acceptance for coverage is determined by inability to engage in any substantial

gainful activity due to medical impairment for a period lasting at least 12 months (Lando and Krute, 1976).

Benefit income from disability programs, particularly Social Security Disability Insurance (which maintains a ceiling on wage earnings at about \$380 per month in 1980 in order to continue to qualify for benefits) is seen as the major disincentive to the continuation of work among disabled persons. Moreover, since a higher proportion of wage earnings are paid as taxes than are disability benefits, these benefits are seen as accounting in some part for the overall declines in labor force participation rates in the last decade (Parsons, 1980).

Certain background characteristics also have been found to influence the labor force participation of disabled persons. Age and educational attainment are associated with work status of the disabled (Levy, 1980; Mudrick, 1983; McNeil, 1983; Osgood, 1977). The length of pre-disability work experience is also associated with the probability of being in the labor force when disabled (Levenson and Green, 1965). Other individual characteristics which have been suggested as influential in the variability in labor force participation of disabled people are job satisfaction (Safilios-Rothschild, 1970) and perceived labor market opportunities (de Jong, 1982).

Supply-side factors are those factors outside of the control of the disabled individual which no less weigh on the choice to work. Some types of social policy-related factors that affect labor force rates of disabled people include the structure of rehabilitation and entitlement programs which systematically include or exclude certain groups of disabled individuals on the basis of their past labor force history

(Ben-Sira, 1981; Franklin and Hennessey, 1979; Greenblum, 1979; Lando and Krute, 1976). This classification of factors also includes shifts in national labor market conditions and regional patterns of employment opportunities that affect the availability of work for disabled people (Lando et al., 1979; Goff, 1973).

Gender is one nonmedical factor that appears to be a source of considerable variation in the labor force participation rates of disabled people but its effect has not been examined sufficiently in the literature to date. Generally, for males working is a socialized role expectation, whereas women's employment is more subject to taste for work, marital circumstances and childrearing patterns (Waite, 1980) as well as to opportunities for employment. In data on disabled persons' labor force participation rates gender differences are quite evident. Census data in 1982, for example, show that 41.5 percent of men with work disability were in the labor force while only 23.7 percent of disabled women were working (McNeil, 1983). The labor force participation rate of disabled women in 1982 was also one-third that of non-disabled women, while among men the disabled were only one-half less likely to be working than the non-disabled. Disabled women are also less likely to leave disability rolls and return to work (Treitel, 1979).

That disabled women are particularly less likely to work than disabled men is not surprising considering repeated findings that women have higher age-standardized rates of chronic conditions than men (Marcus and Seeman, 1981; Verbrugge, 1976) and that women report more days of restricted activity, bed disability and health service

utilization (Nathanson, 1975). However, the fact that disabled women appear to have lower rates of labor force commitment than disabled men when controlling for the severity of the disabling condition (Schechter, 1981) suggests that sources of non-medical variation differentially affect disabled men and women's propensity to work.

Another possible influence on the variable work response of disabled people that also has not received much attention in previous research is the effect of the disabled persons' perceptions of their level of health on their labor force behavior. An important area of study in the field of medical sociology is based on the notion of variable "illness response." This area of study has examined how certain symptoms of illness are "differentially perceived, evaluated and acted upon by different kinds of persons" (Mechanic, 1968:189). For example, the finding of higher illness rates but lower death rates among women in the U.S. has been suggested to be a reflection of women's greater willingness to report illness symptoms and to respond to them via service utilization and decreased activity than men (Gove and Hughes, 1979; Verbrugge, 1976). Although the major focus in the illness response literature to date has been on explaining different behaviors associated with acute illness, the relevance of illness behavior in the study of the labor force behavior of disabled people has been proposed (Safilios-Rothschild, 1970).

It is likely that the labor force behavior of disabled persons is more sensitive to individual perception of health status than the labor force behavior of the general population is. Finding ways to adapt physical limitations to specific job requirements may be effective only

to the degree of optimism the individual has regarding his or her overall state of health. There are implications from disability research that the self-perception of general health by the disabled person has an important association with labor force decisions. Rehabilitation successes and failures have been analyzed in terms of such perceptual concepts as illness roles and illness as deviance, for example (Bynder and New, 1976). There has been little attention paid, however, to the relationship between self-perceived health and the work decisions of disabled people or on how the self-perceptions of disabled persons are related to other factors that are known to influence labor force behavior such as physical health, background characteristics such as gender, or attitudes toward employment.

A conceptual approach is required to study the labor force response of disabled people and for generating and testing hypotheses about the relative impact and relationships between factors associated with work response. Of particular interest in this research is the generation hypotheses about the effects of gender and self-perceptions of health on the labor force response of disabled people. A study conducted in the Netherlands on disability-related behavior provides a conceptual framework that is closely related to the one that will guide this study since it incorporates the effects of medical and nonmedical (specifically perceptual) factors in the study of the decision making processes of disabled persons regarding employment. The following section is an elaboration of the conceptual approach from the Dutch study.

A Conceptual Framework

The Dutch study which utilized a conceptual framework that is similar to the one to be used in this research was conducted at Leyden University in 1982 (de Jong, 1982). It was an examination of the determinants of entry into the Disability Social Insurance program in the Netherlands. The Dutch disability system is extremely lenient in comparison to the U.S. system of benefit determination. If a person has been on sick leave for one year full benefits are generally awarded and the refusal rate is only about 7 percent in the Netherlands.

Despite the leniency in benefit entitlements in the Netherlands, variable claim rates and variable labor force rates exist for groups of people with essentially the same levels of work capacity (de Jong, 1982). Therefore, the researchers at Leyden were interested in the same dynamic that is at issue in this study; that is, why do some people decide to work when disabled while others decide not to work and claim disability benefits? The researchers at Leyden believed that the variability in work response and claim behavior at similar levels of physical capacity defied explanation solely by the micro-economic tenet that presumes rational choice as the basis for behavior. Consequently, they turned to the concept of illness behavior to derive hypotheses about the variable behaviors of disabled people with the same levels of incapacitation.

It was proposed that when two disabled persons with comparable levels of physical incapacitation make opposing choices regarding gainful employment, the basis of their opposing choices is the way

they perceive the symptoms of their illness in terms of their capacity for work. Thus, the assumption guiding the Dutch research was that individual differences in illness response are intervening in the relationship between actual behavior in the labor market and the individual characteristics that influence that behavior.

The Dutch study examined a probability model consisting of two equations. One equation was to explain the formation of the perception of work capacity and the second was to explain the probability of entering the disability insurance program.

Perception of work capacity was predicted to be primarily dependent on the objective medical circumstances of the person's health condition. In other words, the nature and extent of physical limitations has the strongest impact on how a person assesses his or her capacity for work. However, it was hypothesized that the influence of the objective circumstances of the illness on the perceived work capacity of a disabled person could be modified by the person's inclination to work. To the degree that a person's financial situation, family responsibilities and background characteristics incline or disincline that person from working, the perception of work capacity departs from objective medical criteria of capacity. Thus, it was proposed that perceived work capacity is influenced primarily by medical necessity and secondarily through the interaction of medical necessity and the inclination to work.

According to the Dutch model the second equation, whether a person actually becomes an entrant into the insurance program, depends on three types of factors: the medical necessity to stop work, the perception of

work capacity, and, an additional source of variation, the opportunity to claim benefits. It was proposed that medical necessity again has a main and direct influence on this second dependent variable, the probability of entry. If the disability is severe enough the disabled person is almost certain to gain entry into the insurance system. However, it was also proposed that the room for variability in claiming benefits increases as the medical necessity becomes less compelling. It is assumed that inclination factors do not directly affect claim behavior; however, the perception of work capacity was expected to have an independent effect on claim behavior when controlling for medical necessity. Perceived work capacity is thus also entered into the prediction of the probability of entry.

The variability in the likelihood of entry was also expected to depend on the extent to which postponement of work is tolerated by the social environment of the disabled person. Specific social contacts that might determine the acceptability or opportunity for the disabled person to claim benefits are the social insurance institution, the employer and household members. First, in substantiating the person's need for benefits, the burden of proof rests with the social insurance agency. Certain factors are involved in eligibility determination in the Dutch insurance system besides medical evaluations made by doctors. Age of the claimant is also seen as an informal criterion since there is less social stigma cost on labor force withdrawal at later ages. The gender of the disabled person was also associated with the opportunity to claim benefits. Since traditional gender stereotyping regarding the need for employment evidently persists in the Netherlands, the

researchers predicted that married women were less likely to be given the opportunity to claim benefits since they are not viewed as primary bread-winners. Labor market conditions and individual labor market records were also considered informal determinants of the opportunity to claim benefits in the Dutch system. Social insurance determinations are said to informally take into account the availability of work for the disabled person and the person's likelihood of obtaining work given his or her previous labor force history.

The employer's perspective on maintaining a worker was considered a factor in the opportunity to stop work as well. Employers' willingness to adapt to the needs of disabled persons in terms of the person's work performance, relative redundancy and extent of tenure with the firm are all involved in the employer's commitment to maintaining a disabled worker.

Finally, the household circumstances of the disabled persons were also said to relate to the opportunity to claim benefits. Having the financial responsibility of supporting dependent children is likely to reduce the opportunity to withdraw from work and claim benefits, for example.

To summarize, the conceptual model employed in this Dutch study of disability behavior proposed that individual perceptions of work capacity have a large influence on the likelihood of entry into the disability insurance program. Perceptions were modeled as dependent primarily on the medical necessity to withdraw from work, and secondarily on the inclination to withdraw from work. The probability of entry into the social insurance program was proposed to derive mainly

from the medical necessity to withdraw from work; however, perception of work capacity was expected to strongly influence entry controlling for the medical necessity. In addition, the opportunity to withdraw from the workforce was expected to independently affect the probability of entry.

In this research the same typologies of explanatory variables will be utilized; however, since the dependent variables to be explained are different from the Dutch study, the specific explanatory factors examined will depart somewhat from those used in the Dutch study. The two dependent variables in the Dutch study were self-perceived work capacity and the probability of entry into the disability insurance program. Here, they will be self-perceived health and the probability of being in the labor force. The first dependent variable in each study is a measure of perceptual illness response; the second is a measure of behavioral illness response. The guiding assumption for both studies is that perceptual illness response is pivotal in the relationship between disability behavior and associated medical and non-medical characteristics of the disabled person.

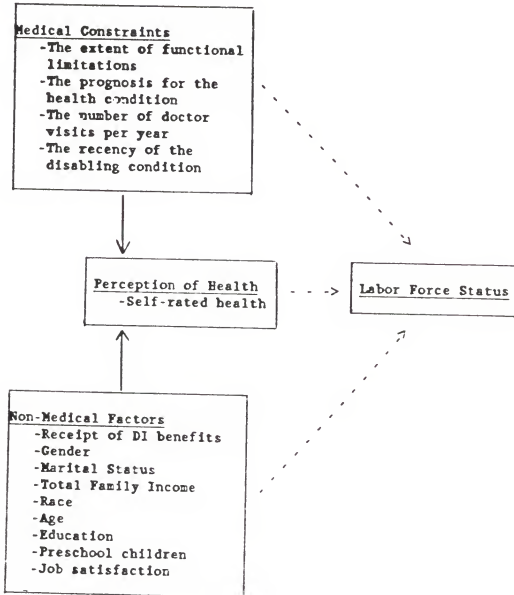
In this study the perceptual variable to be examined, self-rated health, is a more global measure of symptom evaluation than is perceived work capacity. It is important to understand whether self-rated health, which is a commonly used health survey item, can be identified as a useful predictor of specific behaviors of disabled people. If it appears that self-rated health does strongly influence the probability of working when disabled, then the utility of this survey item can be substantiated. In addition, understanding the determinants of self-

ratings of health of disabled people might also be useful to rehabilitation strategies.

The model for the prediction of self-rated health for this study will include medical and non-medical factors that are hypothesized to affect the probability of rating one's health as favorable or unfavorable when one is disabled. These variables include medical necessity factors and inclination factors as in the Dutch study (see Figure 1).

First, health perceptions are most likely to be influenced by the medical necessity to stop working, which can be measured by the extent of functional limitations, the prognosis for the medical condition, the duration and by the extent of clinical care required by the health condition. However, the room for variability in health perceptions is presumed to increase as the severity of the medical condition decreases. Thus, in less extreme cases of disability other factors besides clinical ones are likely to influence the overall perception of health status. The inclination to work is expected to exert an influence on health perceptions. It is expected that those persons who are less inclined to work when disabled are more likely to rate their general state of health as poor than those who are inclined to remain working. Demographically, certain groups of individuals are more or less inclined to work when the option of claiming benefits exists. Older persons who become disabled may utilize the disability insurance system in lieu of working as a sort of early retirement option, for example.

Figure 1. Conceptual Model of Factors Involved in the Relationship Between Perception of Health and the Labor Force Status of Disabled People.



The receipt of rehabilitation services and certain attitudes toward working are also inclination factors that are expected to affect the probability of having an optimistic perception of personal health. Thus, it is proposed that to the extent the inclination to work exists, the disabled person's estimation of their health status will depart from the medical necessity for pessimism or optimism. The inclination to work can decrease if the disabled person receives disability benefits, however, since the system of benefits imposes a ceiling on the allowed level of earned income while receiving benefits. Therefore, the receipt of benefits probably reinforces medically based pessimism regarding overall health.

In summary, if the objective necessity to stop working is compelling then pessimism about one's general state of health is inevitable. As objective necessity becomes less of a constraint, the inclination to work may reduce the effect of medical circumstances on the perceived health status of the disabled person.

As the title of this dissertation states, however, the major focus of the research is to investigate sources of variation in the labor force response of disabled persons. It is expected that medical criteria of physical health status will be the strongest influence on the probability of working when a person is disabled. A comparison of certain nonmedical factors affecting the labor force response of disabled persons is thus the major research goal. Previous research suggests that some of the variability in the work response of the disabled should be accounted for by such nonmedical factors as financial need, background characteristics and work attitudes. Gender

is one background characteristic that has been singled out as a particularly strong influence on work response. It was also proposed that the personal evaluation of health status is a pivotal factor in the decision to work or not work when one is disabled.

In order to better understand how nonmedical factors contribute to explaining variability in the labor force behavior of disabled persons, this section of the research will contain two stages of analysis. The first stage will model the probability of working in 1978 for a full sample of disabled individuals. By including in the prediction equation all of the proposed medical and non-medical influences, including gender and health perception, this stage of analysis will allow for an examination of the importance of medical necessity, illness perception and inclination to work to the prediction of the work response of all disabled persons.

The second stage of analysis is designed on the assumption that disabled men and disabled women utilize a different calculus in weighing the advantages and disadvantages of working when disabled. On the basis of this assumption, analyses predicting work response will be performed on separate samples of disabled men and disabled women. The literature review that follows will expand on how medical necessity and inclination factors may differentially affect men and womens' labor force behavior when they are disabled.

CHAPTER II REVIEW OF THE LITERATURE

Defining Disability and Data Implications

Disablement has a variety of causes, consequences and indicators so that it is difficult to define the concept of disability with precision, no less to organize a conceptual framework for the study of disability behavior. In describing the phenomenon of disability Nagi (1979) first distinguished it from its possible contributors--pathology, impairment, and handicaps. Pathology according to Nagi refers to the active organic aspects of disease processes and trauma to the body; pathology entails biological malfunctioning and biological restorative processes. Impairment, on the other hand, is best described as the residual losses that remain after the active stage of pathology has passed, and can be measured along a continuum of functional incapacitation of body tissues and organs. Handicaps refer to the gross level of functioning, that is, functional incapacitation in certain activity spheres, such as physical, emotional, mental or sensory deprivation. Disability, says Nagi, is each of the above situations when considered within the realm of social transactions. In other words, disability is best considered as a social rather than a physical concept, and it represents "a loss or decrease in ability to respond to behavioral expectations" (Haber, 1967:20).

The standard used in this country's disability policy for determining who is disabled is the ability to engage in labor market activity. The Social Security Act defines disability as the

inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or has lasted or can be expected to last for a continuous period of not less than 12 months (U.S. Department of Health and Human Services, 1982b).

Thus, the central point of reference for defining disability for administrative purposes is market work capacity, and judgements are made on medical evidence of the severity of the impairment and resulting functional limitations. This administrative standard has had a substantial impact on the structure of disability programs in the U.S. in concentrating ameliorative policies on the goal of increasing rates of employment for the disabled.

In measuring the size and the composition of the disabled population in a country, either of two techniques has been employed: Data can be gathered from social surveys or data can be gathered from Social Security records. The latter have the disadvantage of not being population comprehensive, but they do contain objectively assessed determinations of disability. Social surveys, which are the primary measurement technique employed in the U.S. (Haveman et al., 1984), have the advantage of allowing for population estimates but the disadvantage of potential respondent bias. Such bias exists since the determination of disability and the severity of the disability is based on respondent self-reports (Haber, 1967). The estimates of the extent and composition of disability in the U.S. population from social surveys are thus subject to

"substantive and unknown bias" (Havemen et al., 1984:103). It has been suggested that the unknown components of this bias include the variation in individual responses to illness and in individual variation in taste for work, both of which are reflected in self-reports of disability (Johnson and Burfield, 1982). Parsons (1980) attributed the bias in self-reported disability to ex-post justification for not working.

For now it is worthy to note that individuals with similar levels of objectively measured work incapacitation often respond differently when asked to define themselves as disabled or non-disabled (Schechter, 1977). This is tentative support for respondent bias in social surveys and points to the need for further investigation of how individual perceptions of illness figure into the relationship between disability and labor force participation.

Characteristics of the Disabled Working Population

In 1979 the Health Interview Survey (a continuing nationwide study sponsored by the National Center for Health Statistics) estimated that 14.6 percent of the non-institutionalized population are functionally limited by a chronic health condition and that about 3.7 percent were considered severely disabled (DeJong and Lifchez, 1983). The Survey of Disability and Work from 1978 showed a higher percentage of disabled people within the working-age population. These data indicate that 16.8

percent of the working-age population in 1978 were disabled and 8.5 percent of this group were severely disabled (U.S. Department of Health and Human Services, 1982a).

Rates of disability increase with age: Only 2.6 percent of 18 to 24 year olds were disabled in 1978 compared with 20.3 percent of 55 to 64 year olds (Haveman et al., 1984). Disability occurs in almost half of the population over 65 (DeJong and Lifchez, 1983). Disability also increases with poverty: The probability of a low-income adult being disabled is twice that of a middle-income adult (Berkowitz et al., 1976). The direction of causality here is unclear, although estimates are at least 30 percent of disabled Americans are poor because their health problems restrict their potential wages (DeJong and Lifchez, 1983).

Education is inversely related to disability. The percentage difference between the rate of disability among the college-educated and people with eight years or less of education is over 20 percent. A possible reason for this difference could be that less educated individuals tend to be in more hazardous occupations. Racial minorities are also more likely to be disabled than the white majority, indicating that a complex relationship may exist between race, education and the incidence of disability (Lando, 1976).

Disability is more prevalent among women than men especially in the severely disabled group. This is probably in part due to the longer lifespans of women which causes a concentration of older disabled women relative to men in the working-age population. Research has also suggested that women are more inclined to report disability than men due

to gender-based norms giving women more permission to respond to the symptoms of illness. This will be discussed in greater detail later.

Rates of disability also show certain patterns related to marital status. The disabled population is largely composed of unmarried individuals, especially in the severely disabled category. In addition, a considerable difference in income is associated with the marital status of disabled persons. Married disabled men on the average earned \$14,194 in 1979 compared to only about \$8,336 for their unmarried counterparts (Haveman et al., 1984). The income disparity between married and unmarried women was even greater, averaging about \$8,106 in 1979.

Changes in the patterns of disease have elaborated the problem of disability--since the turn of the century the incidence of acute infectious disease has dropped dramatically, leading to a rise in the mean expectancy of life at birth, and allowing for the proliferation of illnesses associated with longevity, the chronic and degenerative diseases (Berkowitz, 1979). Subsequently, the prevalence of severe disability increased an estimated 66.7 percent in the decade between 1966 and 1976 (DeJong and Lifchez, 1983). The two major causes of disability in 1976 were heart conditions and arthritis, both of the chronic class of impairment. In addition, diabetes has become the fastest growing major cause of disability in the U.S. (DeJong and Lifchez, 1983).

In contrast to earlier periods of American history when disabled persons in a community received familial support, today their needs are served by a rather confusing and overlapping system of programs. The range of compensation systems in operation today include programs sponsored by the federal government, employers or unions, states and

local governments and individually purchased industry insurance (Soule, 1984). Since 1911 with the passage of the state workers' compensation laws, the proliferation of federally sponsored disability programs has grown to include veterans' compensation programs, the Railway Retirement Disability and Survivors' Program, the Supplemental Security Income Program to provide guaranteed income for needy disabled with a component for disabled children, and the Social Security Disability Insurance Program (Howards et al., 1980). DI, the Social Security Disability program, has had the most sustained growth in numbers served through the years except from 1981 to 1982 when federal incentives to curb growth were initiated (U.S. Department of Health and Human Services, 1982a). Veterans' compensation programs are second to DI in numbers of beneficiaries, although the size of the beneficiary population has not increased dramatically in 30 years.

Among all disabled persons, those who receive benefits are likely to be older than 45; the positive association of age with receiving benefits is generally consistent in all groups of the disabled population (U.S. Department of Health and Human Services, 1982a). More disabled men received benefits than women: 19.6 percent of all disabled men in 1978 compared to only 9 percent of all disabled women received benefits. This gender differential is even more pronounced among the severely disabled; 41 percent of the men received benefits, while only 16 percent of the women did. A comparison of racial differences in beneficiary status shows that the percentages of white and black disabled persons receiving benefits were similar, except among the severely disabled where about 25 percent more white persons received benefits than did black

persons. Approximately 12.7 percent of all married disabled persons received benefits in 1978 compared to 19.5 percent of the previously married or never married (U.S. Department of Health and Human Services, 1982a).

Finally, rehabilitation services, which are the "corrective" focus of disability policy in the U.S., are actually received by a very small percentage of the disabled population. The selection of DI beneficiaries for the Beneficiary Rehabilitation Program is made by state vocational agencies, and the selection process for rehabilitants is a topic of great debate. Beneficiary Rehabilitation Programs are required to serve the "hardest" cases first--the people with severe handicaps, but not deemed so severe that they cannot be expected to ever perform in employment (Haveman et al., 1984). Generally, the aim is to serve those individuals who are judged to have the greatest potential for return to work. The debatable issue is what characteristics define potential for work return and thus potential for recovery (dropping off disability rolls).

Reported figures on the success of vocational rehabilitation programs are scarce and variable. Only about 2 percent of DI beneficiaries received services through the Beneficiary Recovery Program in 1980 (Haveman et al., 1984), for example, and only a few of these could be expected to recover after rehabilitation. Treitel (1969) estimated that about 30 percent of rehabilitation recipients left the disability rolls in 1967 and that the rate declined to about 15 percent in 1976 (Treitel, 1979). Specifically, he found that those who were likely to recover were younger males with higher levels of education,

with children to support and with higher predisability earnings. Treitel suggested that in general recovery is most likely for those people with better employment opportunities and who are driven by social incentives to return to work. Greenblum (1979), on the other hand, found that the impact of rehabilitation on subsequent employment was greater for groups historically disadvantaged in the labor market, including middle-aged men, women (especially black women) and Hispanics.

Self-Perceived Health

The introductory chapter proposed that personal evaluations of global health status may be an important determinant of the labor force status of disabled persons. Because the determinants of health perception among disabled persons have not been thoroughly examined, the first aim of this research is to examine the correlates of health perception among disabled persons.

The first part of this section is a review of the concept of illness response in order to establish the theoretical groundwork for associating health perceptions with the labor force behavior of disabled persons. Then the review of the literature covers two sources of variation in global health perceptions: medical constraints and inclination factors.

A Theoretical Basis for Examining Health Perceptions

Medical sociologists have long relied on the semantic distinction between "disease" and "illness" as the basis for their assumption that

health is a subjective and social phenomenon worthy of their study. "Disease" to the medical sociologist refers to the limited concept of observable signs and symptoms of biological malfunctioning, akin to Nagi's (1979) definition of pathology, impairments and handicaps. "Illness," however, refers to the broad classification of the social phenomena surrounding disease-the personal repercussions, the variability in symptom recognition and service utilization, and the social behaviors which occur subsequent to disease onset. Consequently medical sociologists have concentrated on the study of illness behavior which is defined by Mechanic (1968) as the examination of processes affecting the definition of pain and symptoms, how they are accorded significance and socially labeled, and how illness results in changes in social relationships and life regimens.

There is a general agreement in illness behavior literature that the traditional Parsonian model of illness behavior is not appropriate for explaining variation in the behaviors of the disabled (Bury, 1982; Bynder and New, 1976; Callahan et al., 1966; Kassebaum and Bauman, 1970; Mechanic, 1968; Segall, 1976; Stahl et al., 1975; Stewart and Sullivan, 1982). Typically, most illness behavior research relies on this structural-functionalist formula of sick role behavior to investigate patients' responses to acute illness. In this model, illness response is assumed to be governed by well-defined normative expectations: The occupant of the sick role must be prepared to stop usual daily activities, succumb to dependence on others and utilize professional expertise to overcome the illness as quickly as possible (Parsons, 1951). Consequently, variation in illness behavior is often

modeled as directly responsive to structural antecedents which identify how religious, status and ethnic characteristics (Arluke et al., 1979; Feldman, 1966; Gordon, 1966) affect symptom recognition and definition (Feldman, 1966) and service utilization (Koos, 1954; Twaddle, 1969).

It is clear that disability repudiates the basic assumptions of the sick role framework mainly because of the usually permanent or prolonged nature of a disability. Disabled persons do not always expect to recover, do not necessarily desire to depend on others for the remainder of their lives or to curtail normal productive roles, and they most likely gain relatively little diagnostic certainty or relief from professional medical sources. Thus, people with prolonged or permanent health problems fall into a gray area between being labeled as healthy or ill. In addition, there seem to be no normative standards prescribing "acceptable" behavior for disabled persons.

Behavior among disabled persons is probably more sensitive to individual perceptions of overall health and capability than behavior among the acutely ill. Behavioral expectations are well defined in acute illness, and these illnesses allow for an objective separation of the disease from the patient's self-concept (at least an eventual separation since the acutely ill can expect to be only temporarily thwarted from pursuing normatively prescribed behavior). However, disabled people face a future of disruption in normal role transactions and productivity unless their self-perceptions, attitudes and social circumstances incline them to resume what are considered normal roles such as work. Remobilization of resources--for example, finding ways to adapt to the

requirements of employment--may be effective only to the degree that individuals' perceptions of their state of health, their personal characteristics and attitudes toward employment serve as inclinations to work.

It is posited that an explanatory model of labor force behavior for disabled persons must include not only medical constraints to employment but also consideration of the role of individual perceptions of health, personal characteristics and work attitudes as inclination factors in the work decision. It is argued that the individual perception of health may act as an intervening variable between labor force status and both the medical constraints to employment and the inclinations to employment. The following section of the literature review will present evidence for the intervening nature of health perceptions.

Measures of Health Perception

Health is a multifaceted construct, and the diverse measurements of health status that exist in the literature reflect this fact. Lawton (1984) has detailed the ways in which the nature of health has been operationalized in social science investigations. First, Lawton distinguishes between the source of the health measure and the facets of health. Three sources of health measurement are self, clinical evaluations and archival data. Facets of health are numerous, but usually include functional capacity, prognosis, health-related behavior, and global estimations of health which subsume all the specific facets of health in deriving an overall single rating. The most ubiquitous of

health indicators in the research and in social surveys is self-rated health. The source of self-rated health is the respondent and the facet of health that it measures is the global nature of health.

Past research on health measurements has focused on the relationships among the different sources of health measurement in order to find the "best" source by which to measure health. Obtaining a totally valid and reliable assessment of health has been the bane of social researchers for years. Ratings by physicians or other health experts and archival data are typically considered the most objective measures to employ in conjunction with subjects' own reports, but this method of measuring health is costly and difficult to administer. In lieu of clinical ratings, researchers have relied on global perceptions of health status to estimate levels of health. However, epidemiologists caution that respondents are possibly unreliable retrospective reporters of health and that such responses may be used as a legitimating device in the context of survey questioning (Haberman, 1969).

There is evidence, however, that survey self-ratings of global health status (specifically, asking subjects to rate their health as excellent, good, fair or poor) even in their simplicity can be a cost-effective and adequate substitute for clinical sources of health measurement (Mossey and Shapiro, 1982). For example, in analyzing data from the Cornell University Study of Occupational Retirement Suchman et al. (1958) found that the correspondence between physician-rated health and respondent-rated health was significant, but that two out of three respondents rated in "unfavorable" health by physicians gave themselves favorable reports. They concluded that objective health conditions

constituted only part of the references utilized by respondents in evaluating their own health. Self-ratings appeared to be based on a composite of actual health and attitudinal correlates of health such as how much the respondents worried about their health.

Self-ratings of global health are to a degree a "barometer of self-image" (Friedsam and Martin, 1963). Since health constitutes both physical and behavioral variation in that specific morbid conditions are not necessarily congruent with specific behavioral outcomes, self-ratings may be better prognostic and behavioral predictors than any clinical measure of health. Maddox and Douglass (1973) analyzed the congruence of physician and subject ratings over 15 years and found that self-ratings were better predictors of subsequent physician ratings than vice versa. They suggested that subjects' perceptions of their overall health modified their behavioral reactions to their clinical states of health so that the subjects' responses were reflected in subsequent ratings by physicians.

Mossey and Shapiro (1982) have documented the independent effect of self-assessed health on actual life spans. Using a large representative sample from the Manitoba Longitudinal Study of Aging, they found that self-assessed health was second only to age in predicting early mortality, was the strongest predictor of late mortality, and that the relationship between self-assessments and mortality was independent of actual health conditions. This research gives more compelling evidence of the value of self-assessed health as a source of what one might refer to as the total health profile.

The components of self-ratings of global health are thus of great interest to illness behavior researchers. It is generally accepted that when people evaluate their health in a global fashion they reflect not only the symptoms and constraints of illness and their ability to function in their major roles, but also reflect some general feeling states and normative tendencies (Angel and Cleary, 1984; Greenblum, 1984; Okun et al., 1984).

The literature review of the components of perceived health will present research on the association of medical factors, psychological states and attitudes and socio-demographic characteristics with self-perceived health. The majority of this literature is based on gerontological studies in which self-perceived health has been explored for its utility in medical diagnosis and as a measure of morale and life satisfaction among the elderly. Consequently, the following section will reflect this bias.

Medical Constraints on Perceived Health

Physical health is the most consistently used correlate of self-rated global health in the research and has been operationalized in a variety of ways. Considered the most objective source of measurement, physician-rated health using records of the incidence and severity of health problems is found to have a significant and positive correlation with self-ratings (La Rue et al., 1979; Maddox and Douglass, 1973). This finding indicates that self-rated health is not random and that it can be an adequate substitute for health measurement when other forms of health information are lacking.

The evaluation of personal health is no doubt associated with the prognosis for an illness. Gordon (1966) investigated four factors in relation to sick-role identification, prognosis, symptoms, physician's care and functional capacity. Prognosis was the most important factor in identifying someone as sick. Functional capacity was found to be more relevant in labeling someone as sick for those persons in lower socioeconomic statuses. Osborn (1973), who also found an inverse relationship between self-rated health and socioeconomic status when controlling for objective illness, said that this finding shows that the consequences of ill health are more severe for persons in lower economic statuses than for people who are financially well-off.

Researchers using survey data have operationalized physical health status by counting the reported numbers of morbid conditions, the days of bed confinement, number of medications and physician visits and the number of physical limitations (Linn and Linn, 1980; Markides and Martin, 1979; Rosencranz and Pihlbad, 1970; Suchman et al., 1958). The lack of consistency between physical health measures and self-rated health in survey data is probably due in part to the fact that the different measurements used to measure physical health tap discrete components of health that may or may not converge in the respondent's perception of global health status. It may also be due to the motivation of the survey respondent in reporting physical health. For example, Fillenbaum (1979) found physical health and self-assessments to be more incongruent among institutionalized elderly persons than independent-living elderly. This finding suggests that the institutionalized elderly are less likely to evaluate their health on

the basis of physiological states such as the degree of dependency their condition warrants or the number of medications they use, both of which influenced the ratings of the community-based elderly in this study. Rather, the institutionalized elderly probably overemphasize sickness in relation to actual feeling states in order to justify remaining in the dependency situation when community living is viewed as an nonviable alternative. Therefore it is important to realize that the association between objective and subjective indices of health can be conditioned by the motivation of the respondent in legitimizing their situation (Parsons, 1980). The goal of good health can sometimes compete with the "perceived rewards and costs relative to attaining other goals" (Twaddle and Hessler, 1977:109), such as the maintenance of a dependency situation, be it institutionalized living or continuation of income maintenance (Menefee et al., 1981).

Changes in perceived health status over a one year period were not significantly associated with any indicator of physical health status, health practices or health service utilization in a study of young and relatively healthy persons (Goldstein et al., 1984). These data suggest that perceived health status is not so much a reflection of acute illness episodes, but may be a better indicator of an individual's sense of chronic illness. Illnesses that are transitory probably do not arouse the perceptual identification with poor health that occurs in more enduring illnesses (Hahn, 1985). Thus, the duration of an illness is a possible correlate of self-perceived global health.

Inclination Factors in Perceived Health

A great deal of recent attention has been paid to factors other than objective measures of health in exploring the components of self-rated health. Socioeconomic status appears to be a significant source of variation. In using a sample of older urban males, Osborn (1973) found that controlling for objective measures of health, men of lower economic status were more inclined to report poorer health than men of better economic circumstances. Using path analysis, Markides and Martin (1979) found that income and education have significant direct effects on self-ratings regardless of actual physiological health, age, sex or ethnicity. Change in self-rated health status over a period of time is also associated with changes in socioeconomic status (Goldstein et al., 1984).

Analyses of gender variation in self-ratings consistently show that controlling for objective health indicators, women tend to rate their health more poorly than men (Goldstein et al., 1984; Maddox and Douglass, 1973; Markides and Martin, 1979), except among the elderly where this situation is reversed (Ferraro, 1980; Fillenbaum, 1979; Stoller, 1984). Women of all age groups tend to report more illness symptoms than men and to use more medical services. Gender differences most likely affect self-ratings indirectly through socioeconomic status. The more pessimistic ratings of women are conditioned by the lower income and education associated with being female (Markides and Martin, 1979).

Poorer evaluations of global health among women have also been explained as a function of cultural norms which make it more acceptable for women to report illness and respond to the symptoms of illness

(Mechanic, 1968; Nathanson, 1975; Verbrugge, 1976). Another possible explanation for gender differences in health evaluations is the "fixed role obligations" hypothesis (Marcus and Seeman, 1981), in that "people having fixed role obligations (i.e., role obligations that are not easily rescheduled) are expected to be less likely to define themselves as ill" and that women who are less frequently employed outside the home "can easily adopt the sick role" (Marcus and Seeman, 1981:175).

Socioeconomic status may also account for some of the intra-racial and cultural differences found in self-reported health. A fairly consistent finding is that social class and cultural identification influence perceptions of illness (Mechanic, 1979; Suchman, 1964; Zola, 1964). An important study of the effects of race and culture is Angel and Cleary's (1984) research comparing perceived health status of Spanish-speaking individuals of Mexican origin, English-speaking persons of Mexican origin, blacks and non-Hispanic whites. They found that blacks and all individuals of Mexican origin reported poorer global health than non-Hispanic whites. However, when controlling for socioeconomic factors the difference between blacks and non-Hispanic whites became insignificant, as it did between English speaking Mexican-origin individuals and non-Hispanic whites. This supports the hypothesis that intra-group variation in globally rated health is primarily due to differences in financial resources. However, controls for socioeconomic factors only widened the gap between Spanish-speaking persons of Mexican origin and non-Hispanic whites. Spanish speaking represents more recent immigration and probably greater identification with Mexican culture. The symptoms of poor health were less of an

influence on this group's self-rated health; since their reference group operates at less than optimal health levels in general, their "diminished health status may not seem particularly noteworthy" (Angel and Cleary, 1984:819). Thus, cultural identification appears to affect self-rated health in a direct way, while racial differences appear to operate through socioeconomic status.

The association of age with self-ratings is somewhat complex. Age is negatively associated with self-ratings in some studies (Tessler and Mechanic, 1978), which is to be expected if self-ratings are congruent with the morbid conditions associated with aging. However, contrary to this expectation, studies of the elderly show that this group is likely to report favorable ratings of health more often as they age (Cockerham et al., 1983; Ferraro, 1980; Linn and Linn, 1980; Stoller, 1984). Perhaps it is possible that aging is associated with over-estimation of health, or those who live into extreme old age are physiologically superior to others of their cohort (Linn and Linn, 1980). Another explanation of this finding is that the way a person views his or her health is actually a determinant of longevity (Mossey and Shapiro, 1982).

Measures of psychological states have shown consistent and significant associations with self-perceived health, causing some researchers to speculate that self-rated health is valid only as a barometer of psychological health (Suchman et al., 1958) or self-image (Friedsam and Martin, 1963). Tessler and Mechanic (1978) examined the relationship between self-rated health and psychological states with data from four studies encompassing different age groups, socioeconomic levels and institutional settings. They found that psychological distress

(measured via negative affect, nervousness levels and happiness scales) was consistently associated with reports of health status, and was the only consistently significant vector of predictor variables in all four data sets. Moreover, in the two data sets where physical health measures were less reliable in that they were derived from subjects' self-reports rather than physician ratings, the psychological variation was a less powerful predictor than in the two data sets utilizing physician evaluations of objective health. This finding suggests that even self-reports of physiological health are substantially influenced by psychological states of respondents.

Depressive symptoms have also been powerful predictors of self-rated health among the elderly. Physically healthy elderly who rate their health as poor tend to be dissatisfied with their life and hypochondriacal (Blazer and Houpt, 1978). The relationship between psychological states and self-ratings among the elderly is seen by some researchers as conditioned by the elderly's social isolation and dependency (Lawton, 1977; Stoller, 1984). Stoller (1984), for example, found that functional capacity influences self-ratings indirectly through the degree of social isolation experienced by the individual and the degree of informal assistance required by the individual. The poorer assessment found among elderly men compared to elderly women can be explained in part by the greater degree of social isolation elderly men endure.

Finally, Cole and Lejeune have argued that in the U.S. "people use poor health to legitimize a sense of failure to fulfill socially prescribed roles" (Cole and Lejeune, 1972:38). They found in a study of

welfare recipients that after controlling for physical health, self-ratings of health were inversely related to the receipt of income maintenance. The same implication comes from studies of early retirement which find an association between self-reported health and pension eligibility (Meyer, 1982; Palmore et al., 1982; Quinn, 1977). Cole and Lejeune (1972) also found that women who defined their performance as wives and mothers as being less than adequate also tended to rate their health more poorly than women who were satisfied with their role performance. Findings reported by Berkowitz et al. (1976) provide additional support for the association exists between dissatisfaction with role performance and identification with poor health among disabled persons. Job satisfaction may also bear on disabled persons' perceptions of their global health (Greenwood, 1984)

Labor Force Participation of Disabled Persons

Since a substantial proportion of the unemployed in the United States ascribe their unemployed status to disability, the labor force response of the disabled has relevance not only to the study of disability behavior but also to the study of general labor force dynamics. In 1973, 28 percent of non-working men and over 11 percent of non-working women claimed to be disabled (Berkowitz et al., 1976). Those persons out of the labor force tend to be those with the lowest income potential and utilizing Social Security disability payments as the principal compensating income for loss of earned income; disability payments account for 29 percent of the family earnings for whites out of the labor force and 48 percent for blacks (Parsons, 1980).

Work disincentives associated with the Social Security Disability Insurance Program (DI) have come under considerable scrutiny in the last decade. DI more than doubled its beneficiary population from 1.3 million in 1968 to 2.9 million in 1978, and decreased slightly to 2.6 million in 1983 (U.S. Department of Health and Human Services, 1982a). Between 1972 and 1983, DI costs increased more than 34 percent. Total expenditures for all social welfare programs in our country now represent over 25 percent of the gross national product. Much of the debate over the disability issue has focused on methods to reduce beneficiary populations by minimizing work disincentives in specific programs. The goal of these policy debates is the reduction of welfare expenditures in general as well as minimization of overall labor force withdrawal due to disability (Berkowitz and Berkowitz, 1985).

Along with changes in disability policy that have led to more generous and more progressive benefits, work disincentives built into the disability program have evidently increased and, more importantly, have induced those in low income brackets to withdraw from the labor force when their health is poor (Burkhauser and Haveman, 1982; Parsons, 1980). Recovery rates--the proportion of people leaving disability rolls--have declined markedly since the 1960s, from approximately 30 per 1,000 persons leaving the rolls between 1967 and 1971 to about 15 per 1,000 in 1976 (Treitel, 1979). In 1978 only 6 percent of severely disabled people were employed fulltime and 55.8 percent of the partially disabled people were fulltime workers compared to 67.9 percent of nondisabled (Burkhauser and Haveman, 1982).

Data on the workforce behavior of self-defined disabled people demonstrate that differential work responses exist at each level of disablement (as disability is defined by the Social Security Administration). In 1966, for example, more than half of disabled persons were in the work force, 72.6 percent of those with secondary work limitations (able to work fulltime and at the same kind of work but limited in the kind and amount of work performed), 65.1 percent of occupationally disabled persons (able to work but not at the same job as before), and 19.2 percent of severely disabled persons (unable to work altogether) (Berkowitz et al., 1976).

The goal of this section is to elaborate sources of variation in the differential work response of disabled persons. The section covers variation due to medical constraints and inclination for work factors.

Medical Constraints

Certain disabling conditions are associated with working when disabled. Conditions subject to medical improvement, such as psychiatric disorders, fractures, back impairments and tuberculosis, are associated with departure from disability rolls and return to gainful employment (Levenson and Green, 1965; Treitel, 1979).

How the extent of physical limitations affects the probability of continuing to work or successfully returning to work is clearly very important, although this effect is probably conditioned by social role expectations, career options, and employment conditions available to the disabled individual. However, Haber's study (1973) found a direct relationship between the extent of functional limitations and current

work status for both men and women. Changes in health status as measured by functional limitations also are directly associated with changes in the probability of working (Schechter, 1981).

The duration of the disabling condition may also affect the labor force behavior of the disabled person although the direction of this effect is not certain. Levenson and Green (1965) found that an optimal time for successful resumption of work after the onset of a disability is about two to three years.

Inclination Factors

The major nonmedical factor cited in the literature regarding the labor force behavior of disabled persons is disability benefits (Burkhauser and Haveman, 1982; Erlanger and Roth, 1985; Johnson and Burfield, 1982). The receipt of disability benefits can serve as an important disinclination to work for the following reasons. To the extent that a person's health condition reduces his or her labor productivity, potential wages are reduced as is likelihood of being hired for many jobs. Although lower wage rates might induce a person to work more, the economic incentive to continue working is altered if the disabled person can qualify for disability benefits. In that case, income losses can be recouped (Meyer, 1979). Even if the benefit income is well below potential labor market wages, benefit income is not taxed. In addition, once a disabled person becomes a recipient of benefits, market work is less advantageous since the continuation of benefits is contingent on holding earned income to a minimum.

Rehabilitation is expected to encourage labor force participation among disabled persons, but its effect may be conditional rather than independent. For example, the type of disability greatly affects the success of rehabilitation efforts. Tuberculosis and mental disorders are successfully rehabilitated at a rate of 35 percent which is higher than other condition-specific rates (Levenson and Green, 1965). A great deal of variation in rehabilitation success is also associated with sociodemographic characteristics. It has been shown to be least successful among non-white middle-aged and older persons with little education and most successful with married men with extensive family obligations (Greenblum, 1979).

The association of age with working when disabled is fairly straightforward. The proportion of the disabled population who work decreases with age (Franklin, 1974; Franklin and Hennessey, 1979; Schechter, 1977), and the proportion of beneficiaries who leave disability rolls declines with age (Levenson and Green, 1965; Treitel, 1979). This trend is expected since older age is associated with more permanent disabling conditions and less chance of successful re-entry into the labor market. Education and occupational prestige are clearly associated with an increased likelihood of working when disabled (McNeil, 1983; Mudrick, 1983; Schechter, 1977) and with leaving disability rolls for resumption of work (Levenson and Green, 1965; Treitel, 1979).

How race affects the probability of working when disabled is less clear but is an important issue given that working-age non-whites are heavily represented among the disabled (Burkhauser and Haveman, 1982) and

that the estimated impact of functional limitations on labor market activity is much greater for blacks than for whites (Berkowitz et al., 1976; Luft, 1978). Compared to whites, blacks are about one and a half times more likely to be disabled and twice as likely to be severely disabled (McNeil, 1983). Data from the Social Security Administration in 1974 show that one in every eight blacks who received DI benefits continued in some employment while only one in ten of the white beneficiaries were employed (Franklin, 1974), however, a more recent analysis by Schechter (1981) found that race did not significantly affect the probability of working when controlling for beneficiary status. Perhaps the level of benefit income is a basis for racial differences in working while disabled. Since non-whites are more likely to be in low-skilled occupations and have inconsistent labor force experience, their sources and amounts of compensatory income are more restricted than whites. Therefore, non-white beneficiaries are more likely to work to supplement their benefit income.

The disabled population predominantly consists of unmarried individuals (Haveman et al., 1984), but those who are married tend to have a greater likelihood of labor force participation than the unmarried. Among disabled men, 52 percent of the married but only 42 percent of the divorced and 38 percent of the never married were employed in 1981 (McNeil, 1983).

Disabled persons' reactions to their disabilities--their illness perceptions and their work attitudes--are thought to affect their labor force attachment but this effect relative to the effects of economic need, physical capacity and demographic factors has not been sufficiently

examined in the research. Berkowitz et al. (1976) posit that when persons are unhappy with work or their work role, illness or injury provides them with a socially acceptable rationale for labor force withdrawal. One study is known to have tested both the influence of job satisfaction and illness perception on the probability of working when disabled (de Jong, 1982). Job satisfaction had a small but significant and positive effect on working, while illness response, measured by the disabled person's evaluation of their capacity for work, had a large and positive effect on working even when controlling for the medical constraints to working. Perception of work capacity was more influential on labor force status in this study than any sociodemographic or attitudinal factors. On the basis of this finding the researchers concluded that illness perception plays a pivotal role in disabled persons' labor force decisions.

Gender Differences in Labor Force Participation

Gender differences in work patterns of the disabled have received little attention since Social Security data are focused on men who constitute the majority of DI recipients. Statistics do show that fewer severely disabled women are in the labor force than severely disabled men (Berkowitz et al., 1976). Disabled women who have worked the sufficient quarters of covered employment to qualify for DI benefits are also less likely to recover--leave disability rolls--than are disabled men: In 1975, 10 percent of male recipients recovered whereas only 6 percent of the female recipients did (Treitel, 1979). In estimating the probability of working with severe disability, Schechter (1981) found

that men were more likely than women to report working. Predisability work experience probably interacts with gender to depress the probability of women working when severely disabled. Prior unemployment experience is significant along with the level of potential benefits in decreasing the probability of women working among the disabled (Parsons, 1980), and the likelihood of leaving the disability rolls and returning to work has been shown to be associated with higher predisability earnings (Treitel, 1979).

Gender differences in the labor force participation of the disabled may not be due only to differences in men and women's responses to economic incentives but also to traditional gender-based determinants of employment. In our society, gainful employment outside the home has been the primary role responsibility of adult males since the mid 1800's. Success in the good provider role has come to define masculinity itself (Bernard, 1981). Thus, labor force participation became not only an economic necessity attached to the position of husband and father, but also a moral and psychological imperative.

A testimony to the power of the expectations of the good provider role is that the vast majority of men between the ages of 20 and 54 are in the labor force. The peak years of labor force participation for men are between the ages of 25 and 44, when the rates are 96 percent for whites and 89 percent for blacks. Clearly, it is rare for able-bodied men to be out of the labor force (U.S. Department of Labor, 1984).

The work expectations for American women, on the other hand, have been more flexible, depending largely on the demand for female labor and the prevailing ideology concerning women's place. Historically, women's

labor force participation has been more responsive than men's to the socioeconomic and demographic characteristics of their families (Degler, 1980). For many years marriage decreased women's economic responsibility and decreased women's labor force participation as a result. On the other hand, never marrying increases the probability of women's employment as it increases the amount of time she spends in the labor force after completing her education and increases the degree of financial independence as well as her marketability (Ferber, 1982). Being divorced also increases women's labor force participation because it increases the probability that a woman will be dependent on her own earnings to support herself and her dependents (Hofferth and Moore, 1979; Spitze and Waite, 1980).

Previous research on the labor force participation of nondisabled women has also documented the existence of a strong inverse relationship between the presence of young children in the home and women's employment. The presence of children under age six decreases the probability of women's employment at any given time (Hudis, 1977; Smith, 1977; Waite, 1980). Fewer women are employed during the childbearing and early childrearing stages than at any other point until retirement.

Existing literature on the labor force participation of nondisabled women suggests that the impact of other socioeconomic and demographic variables may be more similar for disabled men and women than the impact of family life cycle variables discussed in the preceding paragraph. Until recently, the patterns of white female employment varied significantly with age because of the correlation between women's age and the stages of the family life cycle. As recently as 1971, there was

a considerable decline in female labor force participation between the ages of 25 and 34 for white women because of the presence of preschool children in the home. Black women's labor force participation, on the other hand, increased steadily from the 16 to 19 age group to the 45 to 54 age group. Because of the dramatic increase in female labor force participation that has occurred in the past 15 years--particularly among mothers of preschool children--the rates of black and white women have converged, and the age effect due to the presence of young children has been reduced. Thus, the recent changes in female labor force participation have reduced the age-by-gender interaction, though women's peak labor force rates are still lower than men's by at least 25 percent.

Research on disabled men found that education is positively related to labor force participation. There is also a large body of research concerning the impact of education on nondisabled women's labor force participation which shows that more highly educated women are more likely to participate in the labor force (Bowen and Finegan, 1969; Spitze and Waite, 1980).

CHAPTER III DATA AND METHODOLOGY

Research Strategy

Working or not working when one is disabled is the outcome of a decision-making process, the weighing of alternatives against each other. It is assumed that the two major considerations in the decision to work when one is disabled are the quality of the medical condition and work-leisure preferences, referred to here as inclination factors. On the basis of the theory of illness behavior, it is further assumed that the probability of working is strongly determined by the way a disabling condition is perceived and evaluated. This perception is influenced in part by the medical aspects of the health condition. But it is also expected to be influenced by the inclination to work.

Because the medical severity of a health condition alone can compel a person to withdraw from the labor force, only when the health condition is not severe will inclination factors affect the perception of a health condition and labor force participation. Therefore medical constraints are expected to interact with inclination factors in the prediction of self-rated health and labor force status.

Hypotheses about the relationships among the specific variables in the models of self-rated health and labor force status will be presented later in this section.

Data

The data for this study come from the 1978 Survey of Disability and Work conducted by the Social Security Administration (SSA). The 1978 Survey is the SSA's third major disability survey and its primary concern was to supply data for investigations of individual level factors that relate to the decision to apply for disability benefits. Bye and Schechter (1982) have supplied an extensive Technical Introduction to the 1978 Survey of Disability and Work that outlines the four specific objectives which shaped the questionnaire construction: (1) to provide data on the public's knowledge of SSA programs for disability and their access to them; (2) to examine individual-level work incentives through socioeconomic, attitudinal and psychological factors; (3) to estimate levels of medical severity through subjective evaluations of symptoms and diagnoses to examine the linkages between subjective and clinical health; and (4) to update prevalence estimates of disability as it occurs through demographic stratification. Thus, the survey's foci are consonant with the aims of this study.

The 1978 Survey of Disability and Work was administered from July to September of 1978. A two-frame sampling approach was used to select the respondents. The first was a general population frame of noninstitutionalized persons aged 18 to 64 as of June 1978, in the

continental United States. This was supplemented by a second frame consisting of recent Social Security disability beneficiaries and recently denied applicants, also noninstitutionalized and between the ages of 18 and 64. The 1976 Health Interview Survey (HIS), a national sample of housing units collected for use by the National Center for Health Statistics in an attempt to gather basic data on the health of the general population, was used to represent the general population frame. The Social Security frame consisted of about 18 million persons obtained from SSA's master beneficiary record.

Individuals in the HIS frame were classified into five strata designed to represent levels of disability ranging from nondisabled to severely disabled. The Social Security frame was divided into five strata (four age strata for beneficiaries and one for nonbeneficiaries). Allocation of sample cases between the two frames was based on the assumption that the HIS strata contained all the disabled in the general population and that the SSA frame was wholly contained in these strata. Disproportionate stratified random sampling was used to obtain a total sample of 12,000 which included 5,150 from the SSA frame, 6,860 from the HIS frame, and 520 denied applicants (.1 percent of the SSA cases). The HIS sample cases were selected systematically within each of the five strata with probability proportionate to size (according to the original HIS case weights). The SSA sample cases were selected at random without replacement within each of the SSA strata. Complete information concerning sampling procedures, stratification and case allocation is provided by Bye and Schechter (1982).

Sample

A major concern of this research is to investigate the factors involved in the labor force participation of the disabled and for that reason only those respondents with disabling conditions as defined by the 1978 Survey of Disability and Work's categorization of disability are included. Disability status in the survey was derived from respondents' self-reports on health and work limitations. The respondents were grouped into four categories of disability: Severly disabled, occupationally disabled, disabled with secondary work limitations (with limitations in the kind or amount of work they can do), or nondisabled. All respondents except those listed as nondisabled were included.

Another restriction for sample inclusion is based on the labor force status of the respondent: Any respondents who answered "unknown" to the labor force status item are excluded. Finally, the cases for this analysis will also be confined to individuals between 18 and 55 years of age. The reason for limiting the age at 55 is that the decision to work and to apply for DI benefits are not as salient when a person is approaching retirement. These restrictions leave an overall sample size of 1,752 cases composed of 987 men and 765 women.

Measurement of Variables

Dependent Variables

Self Rated Health (SRH). This dependent variable is a dichotomy of good estimation of health/poor estimation of health. It is a recode of the original survey item which asks the respondents "About your health now, would you say that it is excellent, good, fair, or poor?" Response categories excellent, good and fair were collapsed into one category to comprise the "good" evaluation of health (good=1 and poor=0).

Labor Force Status (LFS). This dependent variable is a dichotomy of in the labor force/not in the labor force in 1978. Those employed or looking for employment were classified as in the labor force (=1). Those who identified themselves as housewives, students or unable to work were classified as not in the labor force (=0).

Medical Constraint Variables

Severity of Functional Limitations (FL). There have been various attempts to construct a reliable health status indicator that measures the severity of functional limitations (Bergner et al., 1978; Broadman et al., 1951; Reynolds et al., 1974). Typically these indicators are scales derived from responses to a list of limitations in daily activities which are then weighted according to their relative severity, the relative severity of physical limitations is somewhat arbitrary, however, given that severity is relative to peoples' lifestyles, job aspirations and role obligations; consequently, weighting on the basis of severity among physical limitations has been

criticized (Haber, 1973; Hunt and McEwen, 1980). For this analysis the severity of functional limitations is an additive scale of the respondent's assessment of his or her level of difficulty with a series of physical activities. No weighing of the relative severity of the specific activities is attempted. The list of physical activities includes walking for long distances, using stairs or inclines, standing for long periods, sitting for long periods, stooping, crouching or kneeling, reaching, using fingers to grasp or handle, lifting or carrying over 10 pounds. Responses to these items are coded 0=no trouble, 1=some trouble, 2=a lot of trouble. The scale ranges from 0 to 16.

Prognosis for the Health Condition (PROG). This variable is the response to the survey question "Do you expect your health condition to improve within the next few years?" Only those respondents who reported that their health conditions limited the kind or amount of work they can do responded to this question. The response categories are 1=yes, I expect it to improve, and 0=no, I do not expect it to improve.

Recency of Major Disabling Condition (RECENCY). Successful return to work after the onset of disability has been shown to be optimal at two to three years post onset (Levenson and Green, 1965). Therefore, this variable is dichotomized where 1=onset at 3 years or less before 1978 and where 0=onset at more than three years before 1978.

Doctor Visits Per Year (MD). This is a continuous variable that indicates how many times the respondent recalled seeing a doctor for his or her health condition in 1978.

Inclination Factors

The Receipt of Disability Benefits (DI). This variable is measured as a dichotomy where 1=receiving DI benefits at the time of the interview in 1978 and where 0=not receiving DI benefits at the time of the interview. This variable is a dichotomy rather than a continuous variable because the actual amount of disability benefits is strongly associated with family income and the respondent's work status, whereas the dichotomized variable does not have a strong association with these other variables in the model.

Other Family Income (INC). This is a continuous variable that is the combined amount of all income received in 1978 by the spouse, children, or any other relatives in the household of the respondent. Other family income is used rather than respondent's income since respondent's income captures some of the effect of respondent's work status, and so it cannot be considered an exogenous variable. Other family income, on the other hand, is not confounded by the respondent's work status.

Gender of Respondent (GENDER). Males=1 and females=0 on this item.

Age of the Respondent (AGE). Age was measured as a continuous variable ranging from 18 to 55.

Number of Years of Education (EDUC). Education was measured as a continuous variable ranging from 0 to 20.

Marital Status (MSTAT). If the respondent was currently married with a spouse present they were coded 0 on this item. All others, including separated, divorced and never married were coded as 1.

Preschoolers in the Home (PRESCH). If there were any children under the age of six in the respondent's home, then they were coded 1 on this variable and 0 otherwise.

Race (RACE). This a dichotomous variable where white=1 and nonwhite=0.

Extrinsic Work Motivation (JOBSAT1). This evaluation of the source of work motivation for the respondent is derived from the survey item that asked them to indicate the extent to which they agreed with the statement "I work mainly for the money." (Respondents who were currently out of the labor force were instructed to answer in the context of their last job). Response alternatives were 1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree.

Intrinsic Work Motivation (JOBSAT2). In comparison with the former work motivation item, this one asked the respondent to what extent they agreed with the item "I can't think well of myself without a job." It was coded in the same way as the JOBSAT1 item.

Specific Research Hypotheses

The Prediction of Self-Rated Health

The medical constraints of the respondent's health condition should have the greatest impact on the rating of global health. Specifically, the extent of functional limitations is expected to have a strong negative effect on global health since the capacity to physically master the environment is a tangible standard by which to judge health status.

The prognosis for the health condition is a source of optimism or pessimism about health and thus should show a positive effect on health ratings. The number of doctor visits in a year is an indication of the amount of care required and thus an indication of the severity of the disability. Although doctor visits should show the same directional effects as functional limitations on self-rated health, this predictor is expected to be less powerful than functional limitations.

The severity of the health condition is expected to interact with self-rated health: When the health condition is not severe, self-rated health should exert a stronger effect on work status. However, inclination to report favorable health despite being disabled is expected to be significantly reduced if a person is economically disadvantaged. The consequences of ill health are said to be more severe for persons with fewer financial resources. Thus, it is expected that economic status, measured here by other family income, will have a positive effect on health ratings, and the interaction between other family income and functional limitations will test the hypotheses that those with low incomes are more likely to report poor health within levels of severity of physical health.

Since women tend to rate their health more poorly than men controlling for the severity of the health condition, being female is likely to have a negative effect on global health ratings. A significant effect would be support for the notion that women are more inclined to adopt the sick role than are men.

Although racial differences have been shown to be a source of variation in perceived health, the propensity for non-whites to have

poorer health ratings is probably due to differences in economic status. Hence, race is expected to be insignificant when controlling for family income.

Since increasing age is associated with failing health, age should negatively affect self-rated health. A positive effect of education is hypothesized, although its significance may be attenuated when controlling for economic status. Being married is expected to positively affect self-rated health since nonmarried persons are thought to be more vulnerable to the stressful conditions of life (Pearlin and Johnson, 1977; Twaddle and Hessler, 1977).

Finally, research shows that receiving certain types of income compensation tends to result in unfavorable evaluations of health. These findings have been interpreted as support for the "legitimizing hypothesis". That is, an individual justifies reduced labor force participation and receipt of compensation by identifying with being sick regardless of the severity of his or her health condition. Hence, an inverse relationship between the receipt of DI benefits and self-rated health among the disabled would further support the "legitimizing" hypothesis. Two additional indicators of work motivation will be included to determine if work attitudes also operate as inclination factors on self-rated health. These motivational factors are measures of intrinsic and extrinsic work-role satisfaction.

The Prediction of Labor Force Status

As in the model of self-rated health, medical circumstances of the disabling condition are a major determinant of the probability of

working when disabled. The extent and severity of functional limitations can, in extreme cases, leave no choice but labor force withdrawal. As a group, the other medical factors, prognosis, recency and number of doctor visits per year, may have an effect on the disabled person's subjective perception of his or her state of health and thus indirectly affect his or her probability of being in the labor force. Thus, functional limitations should show a significant and negative effect on the probability of labor force participation when controlling for self-rated health, while the other medical indicators are less likely to be significant net of the presence of self-rated health.

Self-rated health is posited to be a strong independent influence on the probability of labor force participation; its effect may also be interactive with functional limitations, however, since in cases where the severity of the health condition is extreme, there is little room for subjective variation in health evaluations. To the extent that functional limitations are less severe, self-rated health and work-leisure preferences operate as inclination factors in the probability of being in the labor force when disabled. Thus, it is also posited that functional limitations are interactive with factors representing work-leisure preferences, the inclination variables.

The availability of compensation for a disability is the most cited work disincentive in the literature. Receiving DI benefits is expected to have the strongest impact among the inclination variables on the probability of working since benefits not only give official sanction on the reduction of work but they are also contingent on the reduction

of earned income. The disincentive effect of receiving benefits is probably associated with age. Older persons are less likely to work when receiving benefits since their ability to compete for jobs is reduced by their age and their disabilities which are likely to be more severe in older ages.

Nonwhites and poorly educated persons are more likely to have severe disabilities and therefore are less likely to be working than white disabled people. However, it has also been shown that more non-whites who receive benefits work than whites (Franklin, 1974). This indicates that non-whites have the need to supplement their beneficiary incomes with low-paying jobs whereas whites have better economic resources to draw from. Thus, there is contradictory evidence about the relationship between race and the probability of working.

It is also not clear how economic status affects the probability of working. Schechter (1981) found that the need to support family members financially increased the probability of working when controlling for the receipt of benefits, but he did not test the effect of actual income levels on the probability of working. On the one hand, persons in lower socioeconomic strata are more likely to be severely disabled and thus more likely to be forced into work reduction. On the other hand these same people may be compelled to work despite their disabilities and even if they receive compensation since they have few economic resources to draw on other than their own earnings. A significant interaction between other family income and functional capacity would suggest that

persons with low family incomes will work regardless of the severity of their health condition, while persons with higher family incomes will withdraw from work when their disabilities are severe.

Disabled males tend to work more than disabled females. Gender is expected to have a strong and independent effect in modeling the probability of labor force participation. The literature also leads us to expect that being married will exert a positive influence on the probability of working when disabled; however, the effect of marital status may be different for men and women. This notion will be tested on the separate models of labor force status for men and women. The presence of preschool children in the home increases financial responsibility for the disabled persons and is therefore expected to increase the probability of labor force participation.

Finally, one would expect that those persons who value work for the self-esteem it brings are more likely to work despite being disabled than those persons whose major work incentive is monetary gain.

Expected Differences in the Labor Force Status of Men and Women

Medical constraints and inclination factors are expected to differentially affect the probability of labor force participation for disabled men and women. Specifically, married men should be more likely, and married women less likely, to be in the labor force when disabled. Descriptive statistics support this hypothesis: In 1981, 29 percent of the disabled women who were married were employed, compared to 36 percent of the divorced and 34 percent of the never married. Since the presence of preschool children has not been considered a determinant of male labor

force participation, its effect has not been examined. It is expected that it may have some impact on the men's probability of working since it reflects family financial responsibilities; but, it is more likely to significantly reduce the probability of women's labor force participation since women with preschoolers are less likely to work than women without preschoolers. Finally, other family income is expected to have more of an impact on the women's probability of working since women are more likely than men to withdraw from the workforce when family economic resources allow than are men.

Existing literature on the labor force participation of the nondisabled population suggests that the impact of other inclination factors may be more similar for men and women than the impact of family related variables. Age should have a similar effect on the labor force participation of disabled men and women, as should education. Race, however, may have different effects, since among the disabled black men are less likely to work than white men and black women are more likely to work than white women.

A major gender difference may emerge in the disincentive effect of receiving DI benefits. Compared to disabled men, disabled women in general may have less economic pressure to be in the labor force since they depend largely on their husbands for economic support. The wages of husbands account for 57 percent of their household income. Nonmarried disabled women, on the other hand, depend largely on government transfers and miscellaneous sources of income (such as contributions from relatives, earnings of grown children, investment earnings, and insurance settlements) (Mudrick, 1983). It is possible, however, that regardless

of marital status, disabled women have few incentives for labor force participation since women's average earnings are considerably lower than men's and their disability benefits are also more likely than men's to exceed their predisability wages (Mudrick, 1983). This suggests, then, that the direct effect of DI benefits in reducing labor force participation will be greater for women than for men.

Moreover, since there are different standards of health for adult men and women in our society, the severity of the disability may have a greater dampening impact on female labor force participation. When women suffer from a health condition, they are not punished as much as men for expressing their symptoms and for withdrawing from their normal routines and obligations (Nathanson, 1975).

Statistical Procedures

To estimate the hypothesized relationships between labor force status, self-rated health, medical constraints and inclination factors, logistic regression will be used. The dependent variables, self-rated health and labor force status, are both dichotomies. Because of the restriction that Y falls between 1 and 0, we are estimating a probabalistic event as a function of a series of exogenous variables. Because the errors in a probability function are dependent on the level of the exogenous variables (the variance of the errors, conditional on X , are not equal), it violates the assumption of homoscedasticity required for obtaining good estimates of the parameters via general linear regression. Therefore, in estimating dichotomous dependent variables the

logistic function is more appropriate since the probability of an occurrence ranges from 0 to 1 as XB goes from minus to positive infinity. By transforming the logistic function, log odds are obtained, which are interpreted as a linear function of the exogenous variables and which allow the use of the maximum likelihood method of model estimation (Hanushek and Jackson, 1977).

Despite the statistical advantage of logistic techniques in the analysis of binary dependent variables, they do not provide a coefficient which yields a simple assessment of the relative impact of each variable (as the Beta coefficient in ordinary least squares regression). One useful method of comparing the impact of variables is the use of predicted proportional effects. These effects are the predicted changes in the probability of the Y outcome resulting from a unit change in the independent variable when the respondent would otherwise be predicted to be at the mean of the dependent variable. Predicted proportional effects are estimated by multiplying the logit coefficient in the full model by the variance of the dependent variable. Predicted proportional effects will be reported only for those explanatory variables which attain significance in the model.

CHAPTER IV FINDINGS

Introduction

The major aim of this research is to explore sources of variation in the labor force participation of disabled persons. As was discussed in Chapter I, the variable rates of labor force participation among the disabled cannot be entirely explained by differences in severity of disabilities or by the rational choice theory which presumes work decisions are based on the maximization of income. In order to account for some of the unexplained variation in the labor force behavior of disabled persons, this research models labor force status as a result of two general groups of factors, medical constraints and inclination to work factors. The medical circumstances of a disability and the inclination to work are hypothesized to converge in disabled persons' perception of their general state of health which in turn is expected to intervene in the decision to work when disabled.

Furthermore, the specific variables in this decision-making process are expected to differentially affect disabled men and women's labor force outcomes. The reasons for this proposed discrepancy are gender-based norms that influence labor force dynamics in the non-disabled population. Family status is a powerful variant in non-disabled women's

labor force behavior and thus is a possible source for gender differences in labor force outcomes of the disabled population. Identification with working as a primary source of self-esteem is said to be a major force in men's high rates of labor force participation, and this attitude may also explain differences between disabled men and women's labor force decisions.

This chapter addresses the issues discussed above. First summary descriptive statistics on all the variables in the analyses will be presented. Second, the relationships between the medical constraints of a disability, the inclination to work and self-rated health will be investigated through logistic regression procedures. Third, the additive and interactive effects of medical constraints, self-rated health and the inclination factors on the prediction of labor force status in the full sample of disabled persons will be examined through logistic regression. Fourth, separate logistic regression models predicting disabled men and women's labor force status will be analyzed in order to determine any gender-specific differences in the motivation to work when disabled. Finally, the results from the separate analyses will be discussed in terms of the utility of the conceptual framework employed in this research, and in regards to their contribution to understanding differences in the labor force behavior of disabled people.

Descriptive Statistics

The sample was restricted to respondents who were considered disabled by the administrative standard of disability, that is, those experiencing a medical condition which restricts labor force activity.

The sample is also confined to individuals between the ages of 18 and 55, the working age population. Table 4.1 provides percentage breakdowns, means and standard deviations for the variables included in the analysis.

As the table indicates, only 31.2 percent of these disabled persons were in the labor force in 1978. The average age of the respondents was 42. The table also shows that there are about 10 percent more men than women and 60 percent more white persons than non-white persons in the sample.

Among the medical constraint variables, the widest dispersion of responses is found in the functional limitations scores for the sampled respondents. The average score was 7.55 in a range of 0 to 16; about thirty percent of the respondents scored four or less on the functional limitations score, while 17.6 percent scored 13 to 16. This shows that the sampled respondents represent a diverse group in terms of their physical work capacity. For slightly more than one-third of the respondents the onset of their disabling condition was as recent as three years at the time of the survey, while the majority (62.8 percent) had been disabled for longer than three years. A large majority felt that their health conditions would not improve (82.9 percent) which is evidence that the sampled respondents generally suffered from chronic health conditions. The level of health service utilization measured by

Table 4.1. Percentage Distributions, Means and Standard Deviations for Variables in the Analyses.

Variable	Percentage	Mean	S.D.
<u>Dependent Variables</u>			
<u>LFS</u>			
In the Labor Force	31.2	.31	.46
Not in the Labor Force	68.8		
<u>SRH</u>			
(Self-rated health)			
Good Health	59.8	.59	.49
Poor Health	41.8		
<u>Medical Constraints</u>			
<u>FL</u>			
(Functional Limitations)			
4 or less	29.5	7.55	4.69
5 - 8	26.8		
9 - 12	26.1		
13 - 16	17.6		
<u>PROG</u>			
(Prognosis)			
Good	17.1	.17	.38
Poor	82.9		
<u>REGENCY</u>			
(Duration of Disability)			
3 years or less	37.2	.37	.48
More then 3 years	62.8		
<u>MD</u>			
(# physician visits/yr)			
0 - 4	90.0	1.54	2.63
5 - 10	9.3		
11 or more	.7		
<u>Inclination Variables</u>			
<u>DI</u>			
(Receives DI Benefits)			
Yes	51.7	.52	.58
No	48.3		

Table 4.1 Continued

Variable	Percentage	Mean	S.D.
<u>INC</u>			
(Other family income)			
\$0	46.4	\$5,453.37	7,665.43
\$1 - 5,000	16.8		
\$5,001 - 10,000	15.3		
\$10,001 - 15,000	11.8		
\$15,001 - 20,000	4.9		
\$20,001 - 25,000	4.1		
\$25,001 or more	2.3		
<u>GENDER</u>			
Male	54.3	.54	.50
Female	45.7		
<u>AGE</u>			
18 - 30	16.6	42.47	9.96
31 - 40	21.2		
41 - 50	34.1		
51 - 55	28.1		
<u>EDUC</u>			
Grammar school	24.3	10.64	3.38
High school	56.0		
College	19.7		
<u>MSTAT</u>			
Unmarried	39.1	.39	.49
Married	60.9		
<u>PRESCH</u>			
(Preschoolers in the home)			
Yes	16.3	.16	.37
No	83.7		
<u>RACE</u>			
White	80.1	.08	.40
Non-white	19.9		
<u>JOBSAT1</u>			
(I work mainly for the money)			
Strongly disagree	23.6	2.72	1.21
Disagree	20.6		
Agree	15.8		
Strongly Agree	40.0		
<u>JOBSAT2</u>			
(I can't think well of myself without a job)			
Strongly disagree	36.6	2.44	1.20
Disagree	16.1		
Agree	14.2		
Strongly agree	33.2		

doctor visits per year was low for this group, which also supports the evidence that the disabling conditions of the persons in this sample were chronic rather than acute; only ten percent saw a doctor more than four times in the year of the interview. Overall, the medical picture of this group of disabled individuals is that they tend to be chronically impaired but have a wide range of physical limitations.

There is also variability in the respondents' estimation of their global health. Despite being disabled to some degree, only 41 percent of the respondents believed themselves to be in poor health. The correlation between self-rated health and the severity of functional limitations is .46 which suggests that there is a strong association between measured physical capacity and perceived health. The correlation coefficients show no evidence of a strong association between self-rated health and the other medical constraint variables, however.

The receipt of DI benefits is expected to be the most influential inclination factor in the prediction of labor force status. Among these disabled persons 51.7 percent were receiving DI at the time of the interview. The measure of association between DI and labor force status is significant as expected. Other family income, another inclination factor which is expected to be particularly important in the prediction of self-rated health, is fairly widely dispersed in this sample. The average family income is low, only \$5,453.37 in 1978; almost half of the respondents' families had no income. Since, the poverty threshold for 1978 for a family of two persons was estimated to be \$3,951 (Lando et al., 1982), these disabled persons and their families are generally disadvantaged financially. The majority of the sampled persons were

married with spouses present and only 16.3 percent had preschoolers in the home. This is not surprising given that the average age of this group is 42.

Finally, on the first work attitude item 40 percent strongly agreed with the statement that they work mainly for money. There is more variability in the responses to the second work attitude item; 33.2 percent strongly agreed that they can't think well of themselves without a job, while 36.6 percent strongly disagreed with the statement.

Analysis of Self-Rated Health

The analysis of self-rated health focuses on how the medical constraints of a disability and the inclination to work influence the disabled person's global sense of being healthy or ill. Functional limitations caused by a disability were hypothesized to be a compelling influence on global health perceptions; but the inclination to work is also expected to modify health perceptions, especially when the severity of the disability is not extreme.

From a theoretical viewpoint, this analysis can extend our understanding of what individual characteristics are associated with sick-role identification. From an applied perspective, understanding the determinants of optimism or pessimism about health in disability might aid rehabilitation counselors in assisting their clients in achieving a sense of well-being despite their disabilities.

Table 4.2 shows the logistic regression results which indicate the effects of medical constraints and inclination factors on disabled persons' evaluations of their global health (1=good, 0=poor).

Increases in the number and severity of functional limitations tend to significantly reduce the probability of a good rating of health, which is consistent with research that documents that global health ratings reflect a realistic picture of an individual's physical health (Maddox and Douglas, 1973). Self-rated health is based in part on the tangible standard of physical limitations. The predicted proportional change score for functional limitations indicates that when the respondent would otherwise be predicted to be at the mean of the dependent variable, a one unit increase in the functional limitations score would reduce the probability of a good evaluation of health by 4.8 percent. Thus, a person with a score of 16 on the functional limitations index would be about half as likely to report good health as a person with a score of four. The prognosis for the major health condition also has a strong independent effect on self-rated health. This is also consistent with the literature that shows belief that one's health problem will improve is an important factor in the positive sense of healthiness regardless of the objective state of one's health. On the other hand, the recency of the health condition and the number of doctor visits it requires in a year, on the other hand, apparently are not related to self-rated health. The signs of the coefficients suggest, however, that the more recent onsets of disability (three years or less) are unlikely to result in perceptual identification with poor health.

Table 4.2. Logistic Regression Results For the Prediction of
Self-Rated Health of Disabled Persons (N=1,752).

Independent Variables	Logit	S.E.	P.P.C.
Intercept	2.2363	.5173	
FL	-0.1983***	.0148	.048
PROG	0.5742***	.1021	.140
REGENCY	0.0240	.1264	
MD	-0.0288	.0230	
DI	-0.9544***	.1230	.230
INC	0.00001	.00001	
GENDER	-0.2695*	.1391	.065
AGE	-0.0217**	.0071	.005
EDUC	0.1020***	.0200	.025
MSTAT	-0.1406	.1368	
PRESCH	0.0020	.1731	
RACE	0.3405*	.1569	
JOBSAT1	-0.0417	.0495	
JOBSAT2	0.0387	.0503	

Mean of SRH = .59

Variance of SRH = .24

-2L = 1786.22

Model chi-square compared to model with intercept only = 2.359.20

* p<.05

** p<.01

*** p<.001

Also, the fewer doctor visits a disability incurs, the less the identification with poor health than that which occurs with frequent health service utilization.

A major hypothesis about the prediction of self-rated health was that the medical severity of a health condition is the major determinant of health perceptions, so that the effects of other determinants of self-rated health depend on the severity of the medical condition. Factors that influence a positive perception of health are effective only when the medical condition is not severe. To test this hypothesis all possible second-order interactions between the functional limitations score and all the inclination variables were included in the prediction model. None of the interaction terms attained significance. This refutes the contention that the effect of inclination depends on the level of severity of the health condition and it suggests that inclination is an additive effect in the prediction of self-rated health. Thus, it is important to examine the effects of the specific inclination factors that independently add to the prediction of self-rated health.

First, the coefficient for the receipt of DI benefits is significant; in fact, the predicted proportional change score suggests that it may be the most important inclination factor in the prediction of self-rated health. The predicted proportional change score indicates that the person who receives DI benefits is 23 percent more likely to view his or her health as poor, controlling for the severity of the medical condition. This corroborates findings of an association of health perception with the receipt of retirement pensions (Myers, 1982;

Palmore et al., 1982; Quinn, 1977) and AFDC (Cole and LeJeune, 1972). Receiving income maintenance for a disability is more likely to occur for people with severe disabilities and thus the effect of DI on self-rated health could be dependent on the severity of the disability. The interaction term between DI and functional limitations was not significant, however. This suggests that another explanation for the effect of DI on self-rated health is required. It is possible that identification with poor health is a result of failure to have market work as a primary source of role satisfaction. A disabled person may subconsciously legitimize the stigma of receiving DI by identifying with the sick-role. It is also possible that having to rely on benefits because one cannot work merely reinforces the sense of suffering incurred by a disabling health condition.

Education is even more significant in the prediction of self-rated health. For every year of education the probability of rating one's health as good increases by 2.5 percent, controlling for medical severity. Thus, level of education is a direct source of health perceptions, as previous literature has shown (Goldstein et al., 1984; Markides and Martin, 1979; Osborn, 1973). There are probably several arguments for this relationship. One is that in the event of becoming disabled persons with more education may have more resources to draw on than persons with little education have. Another reason is that a low level of education often is accompanied by low income which in itself can result in poor health. However, family income does not exert a

significant effect on self-rated health, contrary to previous research (Osborn, 1973). Other researchers tend to use more global measures of socioeconomic status, however, rather than other family income.

When controlling for education and income, race does exert an independent effect on self-rated health which is inconsistent with Angel and Cleary's (1984) research. Although the effect of race is not as strong as other variables in the model, the coefficient for race shows that non-whites tend to report poorer health than whites regardless of their level of functional capacity, education or income.

That women are more likely than men to report poor health also does not appear to be attributable to gender differences in socioeconomic status, since gender is significant when controlling for all other variables in the model. Women are more likely than men to evaluate their health as poor regardless of the severity of their health conditions or their socioeconomic circumstances.

Advancing age significantly reduces the probability of a positive assessment of health which suggests the congruence of aging with a sense of morbidity. Previous research has shown that the relationship between aging and health perceptions may be curvilinear due to improved health estimation in old age. However, in the analysis reported here age has only an additive effect on self-rated health. This is probably due to the imposed age restrictions on the sample.

Being married was expected to positively influence health ratings (Pearlin and Johnson, 1977). Although the sign for the coefficient of marital status is in the hypothesized direction, the variable is not statistically significant. Having preschool children in the home also

does not appear to affect health perceptions when other variables are controlled. Finally, work attitudes apparently are not significant in the prediction of self-rated health for disabled individuals.

In summary, the analysis has not confirmed the major hypothesis, that the medical severity of a health condition is the most important determinant of the health perceptions of disabled persons; nor does it confirm the derived hypothesis, that the effects of inclination factors are conditional on the severity of the health condition. It appears that the self-rating of health, at least among disabled persons, is based on various sources both medical and non-medical. The most substantial effects on self-rated health in this analysis are the severity of the disabled person's physical limitations, the prognosis for the health condition, the receipt of DI benefits, age, gender, education and race. The disabled person who evaluates his or her health positively is likely to be less severely incapacitated, to believe that the health condition will improve, and to be younger, well-educated, and male.

The receipt of DI benefits is particularly influential. This finding alone would lend support to the "legitimizing" hypothesis. Twaddle and Hessler (1977) were quoted earlier as saying that the goal of good health can sometimes compete with the desired maintenance of a dependency situation. Thus, it might be interpreted that reporting poor health is ex post justification of receiving DI benefits. However, the effects of socioeconomic factors suggest that DI is just

another aspect of how low socioeconomic status compounds the problems of being disabled, not only in tangible terms but on a perceptual level.

The literature has also reported that self-rated health is valid only as a barometer of self-image or self-esteem (Friedman and Martin, 1963; Suchman et al., 1958; Tessler and Mechanic, 1978). Because the data used here did not have reliable measures of psychological distress or self-esteem the validity of this notion for disabled persons could not be tested directly. Despite the possibility that psychological states might have accounted for some of the unexplained variation in self-rated health, findings reported here provide substantial evidence that, at least among disabled persons, self-rated health is a multi-faceted phenomenon.

Analysis of Labor Force Status

As was discussed in Chapter III the probability of being in the labor force for disabled persons was hypothesized to be influenced by the medical constraints imposed by a disability, the self-perception of global health and by characteristics that identify the inclination to work. The medical circumstances of a disability were expected to be the most compelling force on the probability of working when disabled. In particular, the severity of the disability was posited to modify the impact of health perception and the inclination to work on the probability of working. Additionally, self-rated health was also

posited to have a strong influence on the probability of labor force participation independent of its possible interaction with the severity of a disability.

In Chapter III it was also said that certain interactions among the inclination variables might be significant in modeling labor force status. First, interaction may exist between the receipt of DI benefits and age since older persons are likely to be more disinclined to work if compensation is available to them. Second, because beneficiary record data show that a higher percentage of non-whites work when receiving DI benefits than whites, interaction between race and DI was suggested.

Table 4.3 presents the results of the prediction of labor force status in 1978 in the full sample of disabled persons. It includes the main effects model (Model 1), the model that examines the independent contribution of self-rated health to the main effects model (Model 2), and the interaction model (Model 3). Model 1 and Model 2 indicate that eight variables significantly affect labor force status in this sample of disabled persons: Functional limitations, the receipt of DI benefits, gender, age, education, race, intrinsic work-role satisfaction and self-rated health.

The severity of functional limitations has the hypothesized inverse effect on the probability of working; the coefficient indicates that the medical circumstances of disabilities are a compelling force in decreasing labor force participation. Contributing to this finding is the significant inverse effect of the receipt of DI benefits on the probability of working: Compensation for a disability acts as a major

Table 4.3. Logistic Regression Results for Labor Force Status in the Full Sample of Disabled Persons (N=1,752).

Variables	Model 1		Model 2		Model 3	
	Logit	S.E.	Logit	S.E.	Logit	S.E.
Intercept	0.3468	.5599	-0.7800	.5922	-1.3039	.8120
FL	-0.1198***	.0153	-0.0824***	.0163	-0.0769	.0898
PROG	-0.2071	.1694	-0.3137	.1727	-0.3118	.1707
RECENCY	-0.0109	.1374	-0.0170	.1404	-0.0358	.1411
MD	0.0359	.0259	0.0454	.0265	0.0477	.0272
DI	-2.5288***	.1504	-2.4235***	.1543	-0.9368	.5819
INC	0.0000	.00001	0.000001	.000001	0.00001	.00001
GENDER	0.7591***	.1560	0.8372***	.1606	0.8216***	.1597
AGE	-0.0447***	.0075	-0.0405***	.0076	-0.0108	.0124
EDUC	0.1025***	.0026	0.0797***	.0230	0.0186	.0385
MSTAT	-0.1591	.1509	-0.1119	.1552	-0.1180	.1555
PRESCH	-0.2843	.1821	-0.2845	.1864	-0.2543	.1843
RACE	0.4304*	.1800	0.4428*	.1870	0.4562*	.1877
JOBSAT1	-0.0386	.0544	-0.0336	.0556	-0.0288	.0558
JOBSAT2	0.4012***	.0564	0.4141***	.0579	0.4304***	.0582
SRH			1.1574***	.1643	1.1093***	.1656
FL*AGE					-0.0029*	.0015
FL*EDUC					0.0101**	.0049
DI*AGE					-0.0371**	.0141
-2 Log L	1522.50		1456.27		1439.26	
Model with intercept only	2283.37		2264.67		2264.67	

* p<.05
 ** p<.01
 *** p<.001

disincentive to working for disabled persons. Although DI benefits are classified in this study as a source of nonmedical variation, it must be acknowledged that persons who receive DI benefits are more likely to be severely disabled than those who do not receive DI benefits; therefore, recipients are less able to work than persons who do not receive benefits. Thus, the strong effect of this variable complements the effect of functional limitations.

The effects of both functional limitations and the receipt of DI benefits are also modified by nonmedical characteristics of disabled persons. First, the interaction model shows that with increasing age there is a decline in labor force participation within each level of the functional limitations index. Table 4.4 demonstrates this interaction effect. Whereas the mean labor force rate of persons aged 18 to 30 and who scored four or less on the functional limitations index was .58 in 1978, it was only .44 for persons who were between 41 and 55 years of age. The mean difference is most extreme in the average range of functional limitations (5-8); in the oldest group, the mean labor force rate was .23 compared to .53 for the youngest group. It is plausible that the older the disabled person, the more difficult it is for he or she to adapt to physical limitations and therefore the more difficult it is for he or she to compete in the labor market for the jobs available to disabled persons.

Table 4.4 also indicates the constraint placed on labor force participation by the severity of functional limitations is not as severe for persons with a college education as it is for persons with only a

Table 4.4. Percentages of Disabled Persons in the Labor Force By The Severity of Functional Limitations and By Age and Education.

	<u>Functional Limitations Score</u>			
	0 - 4	5 - 8	9 - 12	13 - 14
<hr/>				
<u>Age</u>				
18 - 30	.58	.53	.40	.25
31 - 40	.50	.47	.27	.15
41 - 50	.46	.34	.20	.11
51 - 55	.44	.23	.10	.08
<u>Education</u>				
0 - 8 years	.38	.24	.16	.10
9 - 12 years	.49	.37	.20	.10
13 or more years	.60	.56	.27	.22

grammar school or high school education. Again it is in the average range (5-8) of functional limitations where there is the greatest differential in the labor force participation rate between grammar school and college educated individuals; whereas the mean labor force rate for the college educated persons was .56 in 1978, it was .24 for those with only a grammar school education. The ameliorative effect of education for disabled persons is consistent with previous research (McNeil, 1983; Mudrick, 1983; Schechter, 1977), and probably reflects differential employment opportunities. Work available to better educated persons is not as restricted by physical limitations as is work available to less educated disabled persons.

The disincentive effect of DI benefits is also associated with age as the interaction model demonstrates. Fewer older persons who receive DI benefits work than younger persons receiving these benefits. The relationship between age, DI benefits, and labor force participation is seen more clearly in Table 4.5. Among persons receiving DI benefits in 1978, the mean labor force participation rate for persons under 30 years of age was .28, while the mean for persons over 50 was only .06. Thus, it appears that as a disabled person ages and the ability to earn sufficient income through market work declines, DI benefits can be viewed as an early retirement strategy.

However, it is important to note that among younger disabled persons who received benefits, the mean rate of labor force participation was somewhat below the sample mean of labor force participation, which is .31. Thus, it is clear that DI benefits are an important source of reduced labor force activity. This is

Table 4.5 Mean Labor Force Participation Rate of Disabled Persons
By Beneficiary Status and Age.

	<u>DI Beneficiary</u>	
	Yes	No
<u>Age</u>		
18 - 30	.29	.66
31 - 40	.16	.58
41 - 50	.06	.50
51 - 55	.06	.38

substantiated by comparing the means on labor force status between persons under 30 who received benefits with those who did not (.28 compared to .66) and this difference is fairly consistent across age groups.

In general, these results qualify the notion that the major obstacles to working for disabled persons are the medical circumstances of their disabilities and the receipt of DI. The findings suggest that individual characteristics associated with the labor force participation of nondisabled persons are also salient in the labor force behavior of disabled persons.

The main effect's model also reinforces this finding. In Model 1 gender and age are the most important inclination variables. Disabled men were 24 percent more likely to work than disabled women when the other variables in the model are controlled (see Appendix 1). Reasons for this gender difference will be explored more fully in the following section that presents results for separate equations of labor force status for disabled men and women. However, Model 3, the interaction model, shows that the gender difference in work status is not due to women's tendency to report more severe disability: The interaction between gender and functional limitations was not significant in this equation. Nor was the gender difference due to women's greater tendency to report poorer assessments of overall health than men: The interaction equation did not identify a significant interaction between gender and self-rated health.

Earlier chapters discussed difficulties in predicting the effect of race on market work of disabled persons because of contradictory findings

on racial effects. Nonwhites tend to have more severe disabilities and it has been estimated that the impact of functional capacity on labor market activity is much greater for blacks than whites (Berkowitz et al., 1976; Luft, 1975). The interaction between functional limitations and race in this analysis was not significant, however. This tends to contradict the notion that the lower labor force rates of nonwhite disabled people are primarily due to the more severe functional limitations experienced by nonwhites. Second, it was reported in Chapter II that more blacks who were compensated for their disabilities worked than whites who were similarly compensated (Franklin, 1974). This seemed to indicate that nonwhites were more inclined to work despite being disabled and despite receiving income compensation since they tend to have fewer financial resources than white persons to draw on in the event of disability. However, the interaction terms for race and DI benefits and race and income were insignificant in this analysis. Race appears to have a significant main effect on the probability of working when disabled, although the effect is not large.

Neither of the family status variables, marital status or preschool children, show significant effects in the labor force equation. Being married (MSTAT=0) was expected to result in a higher probability of working since a higher percentage of disabled persons who work are married (McNeil, 1983) and since marriage involves financial obligations. Although marital status does not appear to be an important influence on working in this analysis, its effect is expected to differentiate between the labor force outcomes of disabled men and women. If marital status positively affects the labor force participation of women and negatively

affects that of men, then it would tend to show no effect in the full sample. In the same light, although having preschool children is not significant in this analysis of the full model, it may be a significant but opposite influence on the labor force equations for men and women.

The logit coefficient for the second job satisfaction variable, "I can't think well of myself without a job," is significant. This is consistent with the hypothesis that people who value work for the self-esteem it brings are more likely to continue working in the event of disability than those persons who do not view work in this way.

Schechter (1981) found that disabled persons who say that they are responsible for supporting family members are more likely to work than those without family financial obligations. In this analysis, however, a different measure was used to examine the effect of family finances on the probability of working when disabled. The influence of family financial status was examined here by the actual dollar amount of other family income to see if low amounts of family income would increase the probability of working for disabled persons. Family income does not appear to have a main or any interactive effects in the prediction of labor force status, however. It is possible that the actual amount of other family members' earnings is not as influential to a disabled person's labor force decisions as is the disabled person's subjective belief that he or she is obligated to help support the family, as Schechter found.

Finally, health perception, measured here by self-rated health, substantially affects the probability of working for disabled people as was hypothesized, and its effect is independent of the other variables in

the model as Model 2 indicates. Respondents who rated their global health as good were 36 percent more likely to be working in 1978 than respondents who rated their health as poor (see Appendix 1). This variable appears to be the strongest influence on labor force status of any of the medical or nonmedical variables in the model.

Additionally, the effect of self-rated health does not appear to depend on the functional severity of the disability. It was hypothesized that only when the medical condition of the disabled person was not severe would health perception be a considerable source of variation in work response. However, the interaction term between self-rated health and the functional limitations score was not significant, which tends to refute this hypothesis. Rather, health perception appears to have a direct influence on labor force status which implies that disabled persons base their work decisions largely on their perceptual assessments of their general state of health. The previous analysis of the constituents of self-rated health showed that the medical constraints of a disability and the receipt of DI benefits play an important part in the self-rating of health; thus, it is likely that their effects on labor force status are partly indirect through health perception. When self-rated health is entered into the main effects equation, the logit coefficients for FUNCLIM and DI change slightly. Perhaps the disabled person's measured work capacity and beneficiary status are at variance with actual work outcome because of the intervening role of health perception. These data corroborate the hypothesis that differential work responses of disabled persons are due largely to differential health perceptions.

Analysis of Gender Differences in Labor Force Response

In the analysis of labor force status in the previous section, gender was found to significantly affect the labor force outcomes of disabled persons. Being male was associated with a 24 percent increase in the probability of being in the labor force in 1978 when other variables in the analysis were controlled. Primary hypotheses regarding gender-specific motivations to work for disabled persons were derived from research on variables associated with men and women's work behavior in the non disabled population. Family status variables, including family income, marital status and the presence of preschool children in the home were hypothesized to differentiate between disabled men and women's labor force motivations. Higher family income and preschool children in the home were expected to discourage disabled women from employment. Marital status was predicted to exert opposite effects on disabled men and women's work status; married men were expected to be more likely to work whereas unmarried women were expected to be less likely to work.

In addition, DI benefits were predicted to have stronger disincentive effects for disabled women than for disabled men since women's potential wages from market work are less likely to exceed disability income. The severity of the disability and self-rated health were also predicted to have more of an influence women's labor force behavior than men's since the literature tells us that women are more prone to respond to the symptoms of illness both behaviorally and

perceptually. Finally, age, race, education and job satisfaction were expected to exert similar effects in the separate prediction equations for disabled men and women.

Tables 4.6 and 4.7 present the results of the labor force equations for disabled women and men. First, according to the theoretical framework, the medical constraints of a disability were expected to interact with health perception and the inclination to work factors in the prediction of labor force status for both men and women. Although two such interactions were significant in the equation for the full sample, none of the interactions between functional limitations or any other explanatory variables were significant in either the men or women's equations. The second general hypothesis was that labor force status would be significantly affected by disabled persons' health perceptions. Self-rated health did have a consistent and positive main effect in the full sample and it also does for both the men and women's separate models.

Among the medical constraint variables only the functional limitations score is significant for both genders. However, gender-specific effects that were hypothesized for the severity of functional limitations are not borne out in this analysis. Since the literature purported that women are more inclined to respond behaviorally to the symptoms of illness, it was hypothesized that the severity of functional limitations would exert more of a disincentive effect on women's labor force status. Apparently, however, functional limitations are more important to disabled men's work behavior. This finding suggests that men's labor force behavior is more constrained by physical limitations

Table 4.6 Logistic Regression Results for Labor Force Status of Disabled Women (N=765).

Variables	Logit	S.E.	P.P.C
Intercept	-0.0881	.8713	
FL	-0.0570*	.0238	.01
PROGNOS	-0.1462	.2367	
REGENCY	0.1462	.2041	
MD	0.0482	.0347	
DI	-2.1224***	.2575	.40
INC	0.00001	.00001	
AGE	-0.0418***	.0109	.01
EDUC	0.0774*	.0365	.01
MSTAT	0.4857*	.2386	.09
PRESCH	-0.4558	.2767	
RACE	0.4863	.2687	
JOBSAT1	-0.0154	.0797	
JOBSAT2	0.3333***	.0843	.06
SRH	0.9288***	.2554	.18

Mean of LFS = .26

Variance of LFS = .19

-2L = 682.99

Model with intercept only = 919.77

* p<.05

** p<.01

*** p<.001

Table 4.7. Logistic Regression Results for Labor Force Status of Disabled Men (N=987).

Variable	Logit	S.E.	P.P.C.
Intercept	0.8931	.2880	
FL	-0.1140***	.0230	.03
PROGNOS	-0.4963	.2583	
REGENCY	-0.2209	.1999	
MD	0.0425	.0421	
DI	-2.6572***	.1982	.61
INC	0.00001	.00001	
AGE	-0.0463***	.0111	.01
EDUC	0.0819**	.0306	.02
MSAT	-0.6522**	.2227	.15
PRESCH	-0.2764	.2640	
RACE	0.3646	.2655	
JOBSAT1	-0.0672	.0803	
JOBSAT2	0.4232***	.0831	.10
SRH	1.3464***	.2165	.31

Mean of LFS = .35

Variance of LFS = .23

-2L = 747.17

Model with intercept only = 1323.68

* p<.05
 ** p<.01
 *** p<.001

than women's labor force behavior. A possible reason for this is the kind of occupations women and men engage in. Males tend to work in more physically demanding jobs so that physical limitations are more constraining to men's employment. That functional limitations are not as important to women's work status as some of the inclination variables are, suggests that women's employment decisions are more influenced by variation in background characteristics.

Self-rated health is a strong influence on the probability of working for both men and women. A rating of good health increases the probability of working by 18 percent for women and by 31 percent for the men when they would otherwise be predicted to be at the mean of labor force status.

The expectation that the receipt of DI benefits would substantially reduce women's likelihood of working was supported by these data; women who receive DI benefits were 40 percent less likely to be working in 1978. This is consistent with the notion that the disincentive effect of DI benefits is particularly salient in the explanation of disabled women's labor force behavior. However, DI benefits explained as much of the variation in the disabled men's labor force status, since men receiving these benefits were 61 percent less likely to work than those who received no benefits. Thus this variable does not discriminate between disabled men and women's motives for employment.

The subgroup of family status variables were expected to be the most important sources of different motivations for men and women's work. This hypothesis is partly supported by findings in Tables 4.6 and 4.7. Marital status showed the predicted effects. Table 4.6 indicates that

being unmarried significantly increases the probability of a disabled woman being employed, while the opposite is true for disabled men. Disabled men who are not married are significantly less likely to work. These findings are consistent with existing research (Ferber, 1982; Spitze and Waite, 1980). It is evident that the role of the breadwinner weighs heavily on the labor force decisions of disabled people as it does with the nondisabled population. For a disabled woman, not being married and therefore probably self-supporting, is associated with a nine percent increase in the probability of working. For a disabled man, being married and thus probably financially supporting others, contributes 15 percent to his likelihood of working.

The effects of the other two family status variables are different from what was hypothesized. Family income was non-significant in predicting labor force status for both men and women. Other family income was expected to have a substantial negative influence particularly on women's labor force outcomes since disabled women were expected to be less inclined to work in higher levels of family income. This analysis does not support this hypothesis.

Furthermore, having preschoolers in the home was predicted to differentiate between disabled men and women's labor force status, particularly by reducing women's labor force participation. The directional effect of the coefficient for preschool children was as predicted but its effect was not significant in either the men or women's equations.

The logit coefficient for age is highly significant in both men and women's equations, and the predicted proportional change scores are similar. This corroborates the notion that older disabled persons are less likely to work than younger disabled persons regardless of gender. The coefficient for education is also consistent with the prediction that persons with more education are more likely to work regardless of gender. The effect of education is more significant for the men in the sample. This may again reflect that women's employment opportunities are more truncated than men's employment opportunities.

Race was expected to influence labor force status in different directions for men and women since more disabled black women work than disabled white women, and more disabled white men work than disabled black men. It appears, however, that race does not differentiate between men and women's probability of working, nor does it exert a significant effect for either gender.

Finally, the intrinsic work-role satisfaction variable is very significant in both the disabled men and women's equations for labor force status. It is interesting to note that although women are very unlikely to work when they are disabled, viewing work as important to self-esteem greatly enhances the probability of women working when they are disabled.

Overall, the women's equation explained less overall variation in work status than the men's as a comparison of the model log likelihoods with log likelihoods in an intercept-only model demonstrates. It appears that the most substantial difference between the prediction of disabled men and disabled women's labor force status in 1978 was the finding that

being married increases men's likelihood of working while it decreases women's likelihood of working. In addition, this analysis has not supported the idea that disabled women are less likely to work than men because of women's greater sensitivity to health constraints. Disabled men and women's labor force status is similarly affected by health-related variables.

CHAPTER IV SUMMARY AND CONCLUSIONS

Introduction

This research had three goals. The first part of the research was an analysis of the sources of variation in the health perceptions of disabled people. For this purpose, an equation was estimated for the prediction of self-rated global health, with medical variables and non-medical characteristics as predictors of self-rated health. Secondly, the labor force status of disabled persons in 1978 was estimated with a logistic regression equation including medical constraint variables, self-rated health and inclination-to-work variables as predictors of labor force status. Finally, gender-specific motivations to work when disabled were examined by estimating separate equations for the labor force status of disabled men and women in 1978.

The relevance of this research is multidimensional. Understanding the sources of variation in the labor force responses of disabled persons renders a more complete picture than before available of motivation to work despite being in poor health. This information is useful to those who study general labor force dynamics in seeing how long-term health problems affect work response. It is also valuable to policy makers who are trying to understand why people choose to continue

working or to remain dependent on income transfers when disabled. This could help the process of finding practical solutions to the rising costs of income maintenance in the U.S., and to implement more successful job incentive programs for the disabled. The specific focus on health perception in disability has more basic sociological relevance by extending our knowledge of the consequences of disability on illness perceptions, and in turn, how these perceptions dovetail with work behavior.

All of these issues have important social implications given the patterns of disease in our century. As the incidence and severity of acute illnesses have been brought under control through sophisticated clinical and preventative techniques, the prevalence of chronic disabling disease has increased. Preventions and cures for chronic illnesses, such as heart disease, cancer and strokes, are not readily available. This has resulted in situations requiring long-term coping strategies on the part of the disabled person and growing demands on formal assistance. In conjunction with the widening proportion of the work-age and elderly population, these patterns of disease present enormous long term strategic problems in controlling medical and insurance costs and in controlling the rate of labor force withdrawal due to disability.

Conceptual Framework

The labor force behavior of disabled persons was assumed to be responsive to both medical and non-medical characteristics of disabled persons. Although it is logical to expect that if the medical circumstances of a disability are severe enough the disabled person is compelled to withdrawal from labor force activity, previous research has shown that even severely disabled persons sometimes continue to work. Based on de Jong's (1982) conceptual model for the prediction of entry into the Dutch disability insurance program, the labor force behavior of disabled persons in this analysis was conceived as a behavioral response to three sets of factors: The medical constraints of a disability, the perception of global health, and the inclination to work measured by non-medical individual characteristics. The perception of global health was posited to be the pivotal factor in the labor force response of disabled persons since it was presumed to filter the disabled person's response to the medical aspects of disability and the inclination to work into behavioral intentions.

Limitations of The Study

The major limitation of this study regards the use of cross-sectional data. Cross-sectional data do not allow causal explanations of the relationships between the variables in an analysis. It is impossible to determine, for example, what sequence of events leads to the formation of

health perceptions among disabled people or to the decision to work. Hopefully, longitudinal data on work and disability will be available in the future.

Another limitation of this study is the measure of severity of the disability. The index of functional limitations certainly does not give a complete picture of the disabled person's physical capacity. For example, it does not measure the degree to which a person's specific type of disability impairs his or her ability to compete for the particular job that he or she was trained for or aspires to. Different types of disabilities are probably not only associated with the ability to work in a preferred area of employment, but also to an employer's willingness to hire the disabled person.

Additionally, the data base used here gave no indication of how much the disabled person's need for health insurance coverage figured into labor force decisions. A major deterrent for leaving disability rolls is the loss of health insurance, especially since many areas of employment do not provide adequate health coverage for the needs of disabled persons. Thus, the importance of continued medical benefits is possibly a major source of the unexplained variation in the prediction of labor force status in this study.

Summary of Findings

Self-Rated Health

The analysis of the determinants of self-rated health in this sample of disabled people supported some of the hypotheses about the indicators of health perception but also negated hypothesized relationships between the determinants. The medical constraints of a disability were expected to be the major source of variability in self-rated health. These constraints were operationalized in this research by four variables which were thought to identify distinct aspects of illness: The extent of functional limitations, the prognosis for the health condition, the number of physician visits in the previous year, and the recency of the disability.

Self-ratings of global health for the sample analyzed were significantly influenced by the first two medical constraint variables, the extent of functional limitations and the prognosis for the health condition. These disabled persons appeared to arrive at a sense of overall health partially through their ability to function at everyday physical tasks and through their sense of whether they could expect their health condition to improve. The lack of significance for the number of doctor visits per year suggests that health service utilization is not a standard by which disabled persons rate their level of health. Overall, this sample of respondents saw a doctor relatively infrequently throughout a year's time: Almost 90 percent had seen a doctor only four times at most in the previous year. Such a low level use of physicians' services suggests that the range of disabilities represented in this

sample were generally untreatable conditions; thus, health service utilization was not a relevant factor in evaluating health status. The insignificant effect of recency of the disabling condition suggests that the length of time a person lives with a disability is not a determinant of how they evaluate their general state of health. Inclusion of this variable was based on literature which suggests that long-standing health problems were more likely to result in identification with overall poor health than with transitory illnesses (Hahn, 1985). However, the infrequent use of physician's services in this sample suggests that the particular health problems represented here were not of a transitory nature but of a chronic nature. Thus, the duration of the disability was not relevant to the sense of overall health in this group of respondents.

The expectation that the effect of the inclination factors would depend on the medical constraints of the disability was not confirmed by the introduction of interaction terms in the analysis. Instead, five inclination factors were found to contribute independent effects to the rating of health. The receipt of DI benefits substantially reduces the perception of good health. On the other hand, persons with higher levels of education are significantly more likely to feel that they are in good health. These findings are convincing evidence that health perceptions are closely tied to socioeconomic status. Despite the medical severity of a disabling illness, disabled persons who are financially independent and well educated are likely to sense that their general state of health is good. On the other hand, disabled females and older persons are less

inclined to view their health positively. In general, then, disabled persons who are typically in economically unstable positions due to age, gender or education are likely to express a negative sense of health.

Being married does not significantly influence health perception, although marriage has been cited as a buffer for stressful life conditions (Pearlin and Johnson, 1977). The presence of preschool children in the home also does not appear to affect the health perceptions of disabled persons. Finally, neither of the job satisfaction variables were significant in the analysis which suggests that health perception in disability is not related to the motivation to work. However, this does not entirely negate the possibility that employment itself can improve health perceptions. Research has shown that being employed is strongly associated with positive assessments of health, particularly among women (Jennings et al., 1984), but the exact nature of this relationship has not been identified. The problems of assuming causality between health perception and work status will be further discussed in the conclusion.

To summarize, self-rated health seems to be a composite perception of the disabled person's evaluation of his or her physical capacity to deal with everyday tasks and the sense that the specific health condition will improve. The ways disabled persons feel about their health status also varies with specific social and demographic characteristics. Although it seems impossible to concretely define self-rated health, on the basis of this analysis it has been possible to infer what sorts of internal processes are responsible for the perception of good or poor health in disability.

The general importance of identifying the components of self-rated health is worth note. The subjective elements of health are probably important in whether or not a disabled person seeks health care and whether he or she is motivated to utilize preventative health care. Self-ratings of health may also be useful as a method of linking the quality of life of disabled persons to the design of social services; Hunt and McEwen (1980) have argued that self-ratings of health can provide feedback about how individuals feel about their disabilities which can be useful in planning strategies to improve the quality of life for disabled persons. Also, since the perception of being in good health appears to be a strong influence on work behavior, it may also identify an important component of coping behavior in disability.

Labor Force Status

The most remarkable finding in the analysis of labor force status of the disabled was the substantial main effects of health perception and non-medical characteristics on the probability of being in the labor force when it was expected that these sources of variation would depend on the medical severity of a disability. The extent of functional limitations was the only medical constraint that influenced labor force participation, but its influence depends on the age and educational level of the disabled persons: Physical limitations are most restrictive to the market activity of older and less educated individuals.

Nonmedical variables appear to be important in predicting the work status of disabled persons. Foremost among the nonmedical influences is health perception, which has a very significant main effect on the

probability of working. Functional limitations and the prognosis for the health condition are both significant influences on health perception. Prognosis does not have a significant main effect on labor force status, and the effect of functional limitations is reduced when controlling for self-rated health. Thus, the perception of good health appears to be directly important for work behavior rather than conditional on specific medical aspects of health. This strongly suggests the importance of perceptual illness response in the labor force behavior of disabled persons, and it indicates that health perceptions probably account for a large part of the unexplained variation in previous research on the labor force behavior of disabled persons. Personal evaluations of health may be useful predictors of how disabled persons will behave in a variety of situations besides working. For example, the impact of health perception may also be important in the prediction of potential enrollment in disability compensation programs and in potential recovery from compensation dependency. In general, how persons feel about their state of health is apparently at least as important to their behavior as their objective health status.

It is also important to note that the receipt of disability benefits, age and education also may partially influence disabled persons' labor force status through their effect on health perception. DI benefits appear to be strongly associated with poor perceptions of health. This suggests that compensation for a disability validates poor health for

disabled persons and that DI benefits act as a disinclination to work partly through health perception. DI benefits are especially likely to reduce the probability of market work for older disabled persons.

On the other hand, more highly educated persons are apparently less likely to be occupationally impaired in the event of disability. This is indicated in part by education's positive main effect on health perception and through education's modification of the impact of physical limitations on work status.

Hypothesized effects of the family status variables, other family income, marital status and preschool children, were only partly supported. Other family income appears to have neither a direct nor an interactive effect on working when disabled, which was not predicted. Income was expected to positively influence self-rated health as well as the probability of working. Whereas the positive influence of education and the negative effects of age, gender and DI benefits on both perception and behavior indicate that disability has more severe consequences for persons who are in typically unstable economic positions in society, other family income does not support this effect.

The second family status variable, marital status, directly affected labor force status only when it was evaluated in separate models for disabled men and disabled women. This is an important finding since the influence of marital status has been underrated in previous research that focused only on disabled men's labor force behavior, and since its effect apparently gets cancelled out when disabled men and women are combined in an analysis. Marital status is an important source of the differential labor force behavior of men and women. Its specific influences highlight

the importance of the breadwinner role in disabled persons' decisions to work. The disabled woman who is married is much less likely to work than an unmarried disabled woman, and the disabled man who is married is much more likely to work than the unmarried disabled man. Additionally, women who receive disability benefits are much less likely to work regardless of marital status.

These data point to the particular hazards faced by women who become disabled. First, women who never married are likely to have a more continuous record of labor force activity than women who have married. In the event of disability they are more likely to successfully continue working, or if their health prevents them from working their benefit income is calculated to reflect their foregone wages. However, only one-third of nonmarried disabled women and only one-fourth of married disabled women were covered for DI in 1972 (Mudrick, 1983). Households headed by nonmarried disabled women are on the average the poorest and their incomes are predominantly composed of unreliable and variable sources such as contributions from relatives and insurance settlements (Mudrick, 1983).

Second, the present limitation of DI coverage to persons who have worked has produced a gap in insurance especially to disabled homemakers and widowed and divorced women who had previously relied on their husbands' incomes. Not only are these women disadvantaged in the ability to get income compensation for a disability, but they are also disadvantaged in the labor market due to intermittent work records.

Gender inequities in the insurance provision for a disability were acknowledged by the Social Security Administration under the Carter

administration. Three reforms were proposed to extend DI coverage to spouses who may never have worked for wages. Coverage could be extended to these persons on the basis of the non-disabled spouse's earnings record, by assigning market wages to homemaking activities, or by eliminating covered employment as a condition for eligibility (Johnson and Burfield, 1982). However, these proposals have not been pursued in the Reagan administration, which has instead focused on reforms aimed at more selective eligibility for disability benefits (Mudrick, 1983).

The common argument which attributes the low rates of labor force participation among disabled women and other minority groups to malingering is not supported by this analysis. Although disabled women are somewhat more likely than men to perceive their health as poor regardless of the objective severity of their health conditions, the effect of health perceptions on labor force response is not more substantial for disabled women than disabled men. It is more likely that disabled women's low rates of labor force participation are due to the systematic constraints women face in the labor market.

To summarize, persons who experience the problems of general discrimination in the labor market due to age, gender and education, and who are typically living closer to the poverty level because of this, are doubly plagued in the event of disability. They are plagued both in their sense of healthiness and in their ability to achieve the favored social role in our society, working. Clearly, disability is a product of the interaction between individual characteristics and the environment.

Conclusions

The general framework used in this research to assess the effects of medical and non-medical factors in the labor force response of disabled persons requires some modifications. The disabled person's medical circumstances do not appear to be major determinants of work behavior as was hypothesized. Rather, the medical circumstances of a disability are partly responsible for molding the disabled person's perception of his or her health, which in turn is the most important independent source of variation in work response. Non-medical factors, such as age, educational level and income compensation are also largely responsible for variation in health perception, and thus also appear to affect work response mainly through health perception rather than in interaction with medical constraints. Therefore, health perception is a key factor in the labor force behavior of disabled people.

It is important to acknowledge the potential for reciprocal causation between health perception and work response. This analysis shows that a person's economic situation influences health perception. Studies of job loss have shown an association between job loss and physical health changes (Kasl et al., 1975) and the reporting of illness (Catalano and Dooley, 1983). Certainly, the economic instability that arises from job loss might undermine a person's sense of healthiness. However, there is no hard evidence to assume causality from work status to health perception. It is just as likely that the association between work status and health perception is due mainly to the "healthy worker effect" (Jennings et al., 1984); that is, poor health perception accounts for the

unemployment of disabled persons, as was assumed in this study. Without longitudinal data it is impossible to determine whether disabled persons remain out of the labor force because of their belief that their health is poor or if their labor force status is largely responsible for their health evaluation.

The results of this study further substantiate the influence of compensation for a disability on health perception as well as on work status. The disincentive effect of DI compensation on work status is evidently partly indirect through its effect on health perception. However, there is little doubt that the disincentive effect of DI is also related to the high replacement rate of benefits to pre-disability income and to the risk of losing medical insurance when termination of cash benefits occurs. Proposals to restructure the benefit formula such as tightening medical criteria for compensation, increasing the number of quarters of covered employment required for eligibility and reducing replacement rates would no doubt relieve pressures on the Social Security Administration's budget in the short run, but would not necessarily result in more employment among the disabled. Especially for women, minority groups and older disabled persons, such reforms would only add to their predicament of historically low demand in the labor market and the market's discrimination against employing the disabled person.

The solution to the problem of low rates of labor force participation among the disabled is not found in altering the mechanism of compensation alone. One indication of this is the outcome of the 1974 attempt to raise the substantial gainful activity level, the amount of earnings allowed before losing disability benefits. Although the purpose of this

increase was to encourage higher rates of employment and increase beneficiary earnings, neither of these outcomes were realized (Franklin, 1976). In addition, raising the earnings' limit runs the risk of enlarging eligibility criteria and lowering recovery rates, thus resulting in larger program costs in the long run (Franklin and Hennessey, 1979).

The evidence points to the need for more refinement in studying the motivation to work in disability, both from the point of view of the disabled person and the point of view of the workplace. This research has demonstrated, for example, that disabled people should not be considered a homogenous group in terms of work motivation; the separate analyses performed on disabled men and women indicate that the motivation to work is somewhat different for men and women. Women and minority groups have been neglected in program evaluations and disability research because of their low numbers in the available disability data. They have also been neglected in rehabilitation programs due to their discontinuous labor force participation which suggests that they are poor rehabilitation risks (Mudrick, 1983). Further studies are needed to evaluate how different groups of disabled persons respond to rehabilitation.

Finally, the results here also demonstrate that identification with poor health is detrimental to the probability of working for disabled persons regardless of gender, race, age, education or functional capacity. Because identification with poor health is probably a reflexive process whereby personal labeling is reinforced by societal reaction, the subject of public acceptance of the capacities of disabled

workers is an important one. Higher employment rates occur when disabled persons are taken back or maintained by their pre-disability workplaces (Levenson and Green, 1965). If the necessary job adaptations are made, the disabled person is likely to want to engage in employment rather than to retire into disability. A Harris poll found that two-third's of disabled persons who were not working desired work (Friedan, 1986). Also, if continued medical insurance was not contingent on continuation of cash benefits from DI, more disabled persons would be freer to seek employment. These incentives would require a major shift from viewing individual functional impairments as the primary defining feature of disability to viewing the resistant environment as the primary defining feature of disability.

APPENDIX 1

Predicted Proportional Change Scores For Table 4.3

Variable	Model 1	Model 2	Model 3
FL	.04	.03	
PROG			
REGENCY			
MD			
DI	.78	.75	
INC			
GENDER	.24	.26	
AGE	.01	.01	
EDUC	.03	.03	
MSTAT			
PRESCH			
RACE	.13	.14	
JOBSAT1			
JOBSAT2	.12	.13	
SRH		.36	
FL * AGE			.001
FL * EDUC			.003
DI * AGE			.012

REFERENCES

- Angel, R., and P.D. Cleary
1984 "The effects of social structure and culture on reported health." *Social Science Quarterly* 65:814-828.
- Alonzo, A.A.
1979 "Everyday illness behavior: A situational approach to health status deviations." *Social Science and Medicine* 13A:397-404.
- Arluke, A., L. Kennedy, and R.C. Kessler
1979 "Re-examining the sick role concept: An empirical assessment." *Journal of Health and Social Behavior* 20:30-36.
- Ben-Sira, Z.
1981 "The structure of readjustment of the disabled: An additional perspective on rehabilitation." *Social Science and Medicine* 15A:565-580.
- Bergner, M., R.A. Bobitt, S. Kressel, W.E. Pollard, B.S. Gibson and J.R. Morris
1978 "The sickness impact profile: Conceptual formulation and methodology for the development of a health status measure." *International Journal of Health Services* 6(3):393-415.
- Berkowitz, F.D.
1979 *Disability Policies and Government Programs*. New York: Praeger Publishers.
- Berkowitz, M. and E.D. Berkowitz
1985 "Widening the field: Economics and history in the study of disability." *American Behavioral Scientist* 28:405-417.
- Berkowitz, M., W. Johnson, and E. Murphy
1976 *Public Policy Toward Disability*. New York: Praeger Publishers.
- Bernard, J.
1981 "The good provider role: Its rise and fall." *American Psychologist* 36(1):1-12.

- Blazer, D.G., and J.L. Houpt
1978 "Perception of poor health in the healthy older adult."
Journal of the American Geriatrics Society 27(7):330-334.
- Bowen, W., and T. Finegan
1969 The Economics of Labor Force Participation. Princeton,
N.J.: Princeton University Press.
- Broadman, K., A.J. Erdmann, I. Lorge and J.G. Wolff
1951 "The Cornell Medical Index Health Questionnaire II as
a diagnostic instrument." Journal of the American
Medical Association 145(3):152-157.
- Burkhauser, R., and R. Haveman
1982 Disability and Work: The Economics of American Policy.
Baltimore: The Johns Hopkins University Press.
- Bury, M.
1982 "Chronic illness as biographical disruption."
Sociology of Health and Illness 4(2):167-182.
- Bye, B., and E. Schechter
1982 1978 Survey of Disability and Work: A Technical
Introduction. U.S. Department of Health and Human
Services, Social Security Administration Office of
Policy, Office of Research and Statistics, SSA Pub.
No. 13-11743. Washington, D.C.: The Social
Security Administration.
- Bynder, H., and P.K. New
1976 "Time for a change: From micro- to macro-
sociological concepts in disability research."
Journal of Health and Social Behavior 17:45-52.
- Callahan, E.M., S. Carroll, P. Revier, E. Gilhooly, and D. Dunn
1966 "The sick role in chronic illness: Some reactions."
Journal of Chronic Diseases 19:883-897.
- Catalano, R., and D. Dooley
1983 "Health effects of economic instability: a test of
economic stress hypotheses." Journal of Health and
Social Behavior 24:46-60.
- Cockerham, W.C., K. Sharp, and J. Wilcox
1983 "Aging and perceived health status." Journal of
Gerontology 38:349-355.
- Cole, S., and R. Lejeune
1972 "Illness and the legitimation of failure." American
Sociological Review 37:347-356.

- Degler, C.
1980 At Odds: Woman and Family in America From the Revolution To the Present. New York: Oxford University Press.
- Dejong, G., and R. Lifchez
1972 "Physical disability and public policy." Scientific American 6:41-49.
- de Jong, P.
1982 "Working capacity and the probability of entry into the Dutch Disability Program." Paper presented at the Expert Meeting on the Determinants of Access to Disability Benefits, November 1982, The Hague.
- Erlanger, H.S., and W. Roth
1985 "Disability policy: The parts and the whole." American Behavioral Scientist 28(3):319-345.
- Feld, S.
1963 "Feelings of adjustment." In F.I. Nye and L.W. Hoffman (eds.), The Employed in America. Chicago: Rand McNally.
- Feldman, J.J.
1966 The Dissemination of Health Information: A Case Study in Adult Learning. Chicago: Aldine.
- Ferber, M.
1982 "Labor market participation of young married women: Causes and effects." Journal of Marriage and the Family 44:457-67.
- Ferraro, K.F.
1980 "Self-ratings of health among the old and old-old." Journal of Health and Social Behavior 21:377-383.
- Fillenbaum, G.
1979 "Social context and self-assessment of health among the elderly." Journal of Health and Social Behavior 20:45-51.
- Franklin, P.
1974 "Earnings of disabled-worker beneficiaries." Social Security Bulletin 37(6):18-23.
- 1976 "Impact of substantial gainful activity level on disabled beneficiary work patterns." Social Security Bulletin 39(8):20-29.

- Franklin, P., and J. Hennessey
1979 "Effect of substantial gainful activity level on disabled beneficiary work patterns." Social Security Bulletin 42(3):3-17.
- Freidan, L.
1986 "Policies for the disabled must encourage individual productivity and independence." Business and Health 3(7):60.
- Friedman, H., and H. Martin
1963 "A comparison of self and physician's ratings in an older population." Journal of Health and Social Behavior 4:179-183.
- Goff, P.
1973 "Disabled-worker beneficiaries under OASDI: Regional and state patterns." Social Security Bulletin 36(9):3-15.
- Goldstein, M.S., J.M. Siegel, and R. Boyer
1984 "Predicting changes in perceived health status." American Journal of Public Health 74(6):611-614.
- Gordon, G.
1966 Role Theory and Illness: A Sociological Perspective. New Haven: College and University Press.
- Gove, W.R., and M. Hughes
1979 "Possible causes of apparent sex differences in physical health: An empirical investigation." American Sociological Review 44:126-146.
- Greenblum, J.
1979 "Effect of rehabilitation on employment and earnings of the disabled: Sociodemographic factors." Social Security Bulletin 42(8):11-37.
- 1984 "Age and capacity devaluation: A replication." Social Science and Medicine 19(11):1181-1187.
- Greenwood, J.G.
1984 "Intervention in work-related disability: The need for an integrated approach." Social Science and Medicine 19(6):595-601.
- Haber, L.D.
1967 "Identifying the disabled: Concepts and methods in the measurement of disability." Social Security Bulletin 30(12):17-34.

- 1973 "Disabling effects of chronic disease and impairment: II. Functional capacity limitations." *Journal of Chronic Diseases* 26:127-151.
- Haberman, P.
1969 "The reliability and validity of the data." In Kosa, Antonovsky and Zola (eds.) *Poverty and Health*. Cambridge: Harvard University Press.
- Hahn, H.
1985 "Disability policy and the problem of discrimination." *American Behavioral Scientist* 28(3):293-318.
- Hambor, J.
1975 *Unemployment and Disability: An Economic Analysis With Time Series Data*. U.S. Department of Health, Education and Welfare, Social Security Administration Office of Research and Statistics, Staff Paper No.20, January. Washington, D.C.: Social Security Administration.
- Hanushek, E.A., and J.F. Jackson
1977 *Statistical Methods for Social Scientists*. New York: Academic Press.
- Haveman, R.A., V. Halberstadt, and R. Burkhauser
1984 *Public Policy Toward Disabled Workers: Cross-National Analyses of Economic Impacts*. London: Cornell University Press.
- Hofferth, S., and K. Moore
1979 "Early childbearing and later economic well-being." *American Sociological Review* 44:785-815.
- Howards, E.A., and J.E. Jackson
1980 *Disability: From Social Problem to Federal Program*. New York: Praeger Publishers.
- Hudis, P.
1977 "Commitment to work and wages: Earnings differences of black and white women." *Sociology of Work and Occupations* 4:123-146.
- Hunt, S.M., and J. McEwen
1980 "The development of a subjective health indicator." *Sociology of Health and Illness* 2(3):231-246.
- Jennings, S., C. Mazaik, and S. McKinlay
1984 "Women and work: An investigation of the association between health and employment status in middle-aged women." *Social Science and Medicine* 19(4):423-431.

- Johnson, W.G.
1979 "Disability, income support, and social insurance." In E.D. Berkowitz (ed.) *Disability Policies and Government Programs*. New York: Praeger Publishers.
- Johnson, W.G., and W.B. Burfield
1982 "Disability insurance under proposed reforms." In R. Burkhauser and R. Holden (eds.), *A Challenge To Social Security: The Changing Roles of Women and Men in American Society*. New York: Academic Press.
- Kahn, R.L., and J. French
1970 "Status and conflict, two themes in the study of stress." In J.E. McGrath (ed.) *Social and Psychological Factors in Stress*. New York: Holt, Rinehart and Winston.
- Kasl, S., S. Gore, and S. Cobb
1975 "The experience of losing a job: Reported changes in health, symptoms and illness behavior." *Psychosomatic Medicine* 37:106-122.
- Kassebaum, G., and B. Bauman
1970 "Dimensions of the sick role in chronic illness." *Journal of Health and Social Behavior* 6(16):204-230.
- Kasteler, J., R.L. Kane, D.M. Olsen, and C. Thetford
1976 "Issues underlying prevalence of 'doctor-shoppin' behavior." *Journal of Health and Social Behavior* 17:328-329.
- Koos, E.L.
1954 *The Health of Regionville*. New York: Columbia University Press.
- Lando, M.
1976 "Demographic characteristics of disability applicants: Relationships to allowances." *Social Security Bulletin* 39(5):15-23.
- Lando, M., M. Coate, and R. Kraus
1979 "Disability benefit applications and the economy." *Social Security Bulletin* 42(10):3-10.
- Lando, M., and I. Hopkins
1977 "Modeling applications for disability insurance." Conference paper for the American Economic Association Meetings, December.
- Lando, M., and A. Krute
1976 "Disability insurance program issues and research." *Social Security Bulletin* 39(10):3-17.

- La Rue, A., L. Bank, L. Jarvik, and M. Hetland
1979 "Health in old age: How do physicians' ratings and self-ratings compare?" *Journal of Gerontology* 34(5): 687-691.
- Lawton, M.P.
1977 "Morale: What are we measuring?" In C. Nydegger (ed.) *Measuring Morale: A Guide to Effective Assessment*. Washington, D.C.: Gerontological Society.
- 1984 "Investigating health and subjective well-being: Substantive challenges." *International Journal of Aging and Human Development* 19(2):157-166.
- Levenson, B., and J. Green
1965 "Return to work after severe disability." *Journal of Chronic Diseases* 18:167-180.
- Levy, J.M.
1980 "Demographic factors in the disability determination process: A logistic approach." *Social Security Bulletin* 43(3):11-16.
- Linn, B., and M. Linn
1980 "Objective and self-assessed health in the old and the very old." *Social Science and Medicine* 14A:311-315.
- Ludwig, A.M., and F. Farrelly
1966 "The code of chronicity." *Archives of General Psychiatry* 15:562-568.
- Luft, H.
1975 "The impact of poor health on earnings." *Review of Economics and Statistics* 57:43-57.
- Maddox, G.
1962 "Some correlates of differences of self-assessments of health among the elderly." *Journal of Gerontology* 17:180-185.
- Maddox, G., and E. Douglass
1973 "Self-assessment of health: A longitudinal study of elderly subjects." *Journal of Health and Social Behavior* 14:87-93.
- Marcus, A.C., and T.E. Seeman
1981 "Sex differences in reports of illness and disability: A preliminary test of the Fixed Role Obligations hypothesis." *Journal of Health and Social Behavior* 22:174-182.

- Markides, K.S., and H.W. Martin
1979 "A causal model of life satisfaction among the elderly." *Journal of Gerontology* 34:86-93.
- Martin, W.T.
1976 "Status integration, social stress, and mental illness: Accounting for marital status variations in mental hospitalization rates." *Journal of Health and Social Behavior* 17:280-294.
- McNeil, J.M.
1983 "Labor force status and other characteristics of persons with work disability: 1982." *Current Population Reports, Bureau of the Census July Series P-23, No. 127.*
- Mechanic, D.
1968 *Medical Sociology.* New York: The Free Press.
1979 "Correlates of physician utilization: Why do major multivariate studies of physician utilization find trivial psychosocial and organizational effects?" *Journal of Health and Social Behavior* 20:387-396.
- Menefee, J., B. Edwards, and S. Schieber
1981 "Analysis of non-participation in the SSI program." *Social Security Bulletin* 44(6):3-21.
- Meyer, C.W.
1979 *Social Security Disability Insurance: The Problems of Unexpected Growth.* Washington, D.C.: American Enterprise Institute for Public Policy.
- Moles, O.
1969 "Predicting the use of public assistance: An empirical study." *Welfare in Review* 7(6):13-19.
- Mossey, J., and E. Shapiro
1982 "Self-rated health: Predictor of mortality among the elderly." *American Journal of Public Health* 72: 800-808.
- Mudrick, N.
1983 "Income support programs for disabled women." *Social Service Review* 57(1):125-136.
- Myers, R.
1982 "Why do people retire from work early?" *Social Security Bulletin* 45(9):10-14.

- Nagi, S.Z.
1979 "The concept and measurement of disability." In E.D. Berkowitz (ed.) *Disability Policies and Government Programs*. New York: Praeger.
- Nathanson, C.
1975 "Illness and the feminine role: A theoretical review." *Social Science and Medicine* 9:57-62.
- Nelson, E.E.
1973 "Status inconsistency: Its objective and subjective components." *Sociological Quarterly* 14(3):3-18.
- Okun, M.A., W.A. Stock, M.J. Haring, and R.A. Witter
1984 "Health and subjective well-being: A meta-analysis." *International Journal of Aging and Human Development* 19(2):111-132.
- Osborn, R.W.
1973 "Social rank and self-health evaluation of older urban males." *Social Science and Medicine* 7:208-216.
- Osgood, M.
1977 "Rural and urban attitudes toward welfare." *Social Work* 22(1):41-47.
- Palmore, E.
1972 "Social factors in predicting longevity." Paper presented at the Southern Sociological Society Meetings, New Orleans.
- Palmore, E., L. George, and G. Fillenbaum
1982 "Predictors of early retirement." *Journal of Gerontology* 37(6):733-742.
- Palmore, E.B., and V. Stone
1973 "Predictors of longevity: A follow-up of the aged in Chapel Hill." *The Gerontologist* 13(1):88-90.
- Parsons, D.
1980 "The decline in male labor force participation." *Journal of Political Economy* 88(1):117-128.
- Parsons, T.
1951 *The Social System*. New York: The Free Press.
- Pearlin, L., and J. Johnson
1977 "Marital status, life strains, and depression." *American Sociological Review* 42:704-715.

- Phillips, D.L., and B.F. Segal
 1969 "Sexual status and psychiatric symptoms." American Sociological Review 34:58-72.
- Quinn, J.
 1977 "Microeconomic determinants of early retirement: Cross-sectional view of white married men." Journal of Human Resources 12(3):329-346.
- Reynolds, W.J., W.A. Rushing, and D.L. Miles
 1974 "The validation of a function status index." Journal of Health and Social Behavior 15:271-283.
- Rivkin, M.O.
 1972 Contextual Effects of Families on Female Response To Illness. Unpublished Ph.D. Dissertation. Baltimore: Johns Hopkins University.
- Rosencranz, H.A., and C.T. Pihlblad
 1970 "Measuring the health of the elderly." Journal of Gerontology 25:129-133.
- Safilios-Rothschild, C.
 1970 The Sociology and Social Psychology of Disability and Rehabilitation. New York:Random House.
- Schechter, E.
 1977 "Employment and the work adjustments of the disabled: 1972 Survey of Disabled and Non-Disabled Adults." Social Security Bulletin 40(7):3-15.
 1981 "Commitment to work and the self-perception of disability." Social Security Bulletin 44(6):22-37.
- Segall, A.
 1976 "The sick role concept: Understanding illness behavior." Journal of Health and Social Behavior 17:163-170.
- Smith, R.E.
 1977 "Sources of growth in the female labor force, 1971-1975." Monthly Labor Review 100:27-29.
- Soule, C.E.
 1984 Disability Income Insurance: The Unique Risk. Homewood, Ill.: Dow Jones-Irwin.

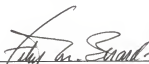
- Soumerai, S.B., and J. Avorn
 1983 "Perceived health, life satisfaction, and activity in urban elderly: A controlled study of the impact of part-time work." *Journal of Gerontology* 38(3): 356-362.
- Spitze, G., and L. Waite
 1980 "Labor force and work attitudes: Young women's early experiences." *Sociology of Work and Occupations* 7:3-32.
- Stahl, S.M., E.E. Grim, C. Donald, and H.J. Neikirk
 1975 "A model for the social sciences and medicine: The case for hypertension." *Social Science and Medicine* 9:31-38.
- Stewart, D.C., and T.J. Sullivan
 1982 "Illness behavior and the sick role in chronic disease." *Social Science and Medicine* 16:1397-1404.
- Stoller, E.P.
 1984 "Self-assessments of health by the elderly: The impact of informal assistance." *Journal of Health and Social Behavior* 25:260-270.
- Suchman, E.A.
 1964 "Sociomedical variations among ethnic groups." *American Journal of Sociology* 70:319-331.
 1965 "Stages of illness and medical care." *Journal of Health and Social Behavior* 19:254-262.
- Suchman, E.A., B.S. Phillips, and G. Streib
 1958 "An analysis of the validity of health questionnaires." *Social Forces* 36:223-232.
- Tessler, R., and D. Mechanic
 1978 "Psychological distress and perceived health status." *Journal of Health and Social Behavior* 19: 254-262.
- Thomas, E.J.
 1966 "Problems of disability from the perspective of role theory." *Journal of Health and Human Behavior* 7:2-13.
- Tissue, T.
 1972 "Another look at self-rated health among the elderly." *Journal of Gerontology* 25:91-94.
- Treitel, R.
 1969 "Financing of disability beneficiary rehabilitation." *Social Security Bulletin* 32(4):29-34.

- 1979 "Recovery of disabled beneficiaries: A 1975 follow-up of 1972 allowances." Social Security Bulletin 42 (4):3-23.
- Twaddle, A.
1969 "The concept of health status." Social Science and Medicine 8:29-38.
- Twaddle, A., and R.M. Hessler
1977 A Sociology of Health. St. Louis: The C.V. Mosby Company.
- U.S. Department of Health and Human Services
1981 User's Manual: 1978 Survey of Disability and Work. S.S.A. Publication No. 13-11732. Washington, D.C.: Social Security Administration Office of Policy.
- 1982a Data Book: 1978 Survey of Disability and Work. S.S.A. Publication No. 13-11745. Washington, D.C.: Social Security Administration Office of Policy.
- 1982b Technical Introduction: 1978 Survey of Disability and Work. S.S.A. Publication No. 13-11745. Washington, D.C.: Social Security Administration Office of Policy.
- Verbrugge, L.M.
1976 "Females and illness: Recent trends in sex differences in the United States." Journal of Health and Social Behavior 17:387-403.
- Waite, L.J.
1980 "Working wives and the family life cycle." American Journal of Sociology 86(2):272-304.
- Weinberger, M., and M. Radelet
1983 "Differential adaptive capacity to hearing impairment." Journal of Rehabilitation 49(4):64-69.
- Wyers, N.
1976 "Underutilization in income maintenance programs." Public Welfare 34(1):41-46.
- Zola, I.K.
1964 "Illness behavior of the working class." In A. Shostak and W. Gromberg (eds.) Blue Collar World: Studies of the American Worker. Englewood Cliffs, N.J.: Prentice-Hall.

BIOGRAPHICAL SKETCH

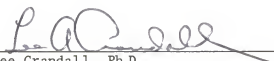
Mary Ann Burg was born October 31, 1954. She graduated in 1976 from Fairleigh Dickinson University with a Bachelor of Arts. She received a Masters in Social Work in 1980 from Florida State University. She entered the doctoral program in Sociology at the University of Florida in 1981 and presently lives in Stony Brook, New York.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.




Felix Berardo, Ph.D. Chairman
Professor of Sociology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



Lee Crandall, Ph.D.
Associate Professor of Sociology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



Cynthia Rexroat, Ph.D.
Assistant Professor of Sociology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



John Henretta, Ph.D.
Associate Professor of Sociology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



Otto von Mering, Ph.D.
Professor of Anthropology

This dissertation was submitted to the Graduate Faculty of the Department of Sociology the College of Liberal Arts and Sciences and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

December, 1986

Dean, Graduate School